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Ballantyne, J. W., M.D., F.R.C.P. Ed., F.R.S.E., Edinburgh.
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THE

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Part First.

ORIGINAL COMMUNICATIONS.

I.—TERATOGENESIS: AN INQUIRY INTO THE CAUSES OF MONSTROSITIES.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E.

(*Read before the Edinburgh Obstetrical Society*, 15*th May* 1896.)

I.—CAUSES OF MONSTROSITIES—(*Continued*).

A. Theories of the Past—(*Continued*).

2. *Physical Causes.*

It must not be supposed that the only teratogenic theories in vogue in past times were those which recognised supernatural agencies. As a matter of fact the early Greek philosophers looked for purely *physical* causes of monstrosities, and these they found in disturbances of the natural phenomena of reproduction. At the same time it must be borne in mind that the notions regarding generation which prevailed in the early Greek age, although vastly more correct than many of the fancies of the Middle Ages, were yet in certain points defective and even erroneous. Consequently the teratogenic theories founded upon them were not free from mistakes. Such as they were, however, they held their ground for something like two thousand years, and even now their influence is to be felt in many of the doctrines of the day.

In order to understand these theories it is necessary to remember the views concerning reproduction which were held by the early Greek writers; these may be indicated in a few words. Since the invention of the microscope was still in the distant future, nothing was known of the existence of human ova and spermatozoa. The evident facts of the generative process were the seminal discharge in the male and the menses in the female. Some writers regarded the semen as the sole, or at least the principal, factor in reproduction; according to them the woman was nothing save a temporary abode for the fœtus. Others were of opinion that the menses supplied the material for generation, and that the male semen was of comparatively little importance. Others, again, saw that both semen and menses were essential factors; and in words which have been ascribed to Aristotle, "The blood of the menses is the marble, the semen is the sculptor, and the fœtus is the statue." Somewhat similar views prevailed amongst the Romans. Pliny, for instance, in speaking of the menses says—I use the words of Holland's translation:—"In very deed it" (*i.e.*, the menses) "is the materiall substance of generation: and the man's seed serveth instead of a runnet to gather it round into a curd; which afterwards in processe of time quickeneth and groweth to the forme of a bodie."

The menstrual blood seems sometimes to have been called the female semen, and the sex of the fœtus was supposed to be due to the greater strength of one of the two seeds. Another notion was that boys were generated in the right testicle and girls in the left; and yet another was that when the semen was deposited in the left side of the uterus a female embryo resulted, when in the right side a male.

Mention, also, must here be made of another belief concerning generation which had its origin far back in the history of the world, and in illustration of which many examples may be found in Greek and Roman mythology. I refer to the supposed fertility of animals of different kinds with one another, and even with man. Aristotle, even, believed in this view to a certain but small extent, and later authors accepted the theory in its widest sense, and with its most ludicrous developments.

The theories of the Greeks passed in process of time to the Romans. During the Dark Ages in Europe they were cherished by the physicians of Arabia, and so in process of time they came to be the views of the nations of Western Europe, when the revival of learning put an end to the epoch of intellectual barrenness. In many ways, however, the original lucidity of the classic theories was obscured during the long period which elapsed between the times of Hippocrates and Aristotle, and those of Paré and Licetus; and metaphysical notions abounded in the writings of the Middle Ages, greatly to the detriment of the purely physical notions of the Greeks.

The teratogenic theories of the past which looked for physical causes of monstrosities were based upon the study of the phenomena of generation as these were then understood; they were, in fact, deductions from them. Further, the various phases of the ideas concerning reproduction were all reproduced in the theories of the causes of teratological productions. Those writers, for instance, who regarded the male semen as the sole, or at any rate as the chief factor in generation, ascribed teratogenic properties to alterations in its quantity or quality. Others, considering the menstrual discharge as of prime importance in reproduction, looked to it as the cause of monstrous births. These two primary theories did not, however, long exist separate, for it soon came to be recognised that both parents might supply teratogenic factors; thus a sort of coalition hypothesis in which now the seminal and again the menstrual element would predominate came into being and long persisted,—persists in a certain sense still.

Alongside of these theories was constantly to be found that other which regarded teratological productions as the result of intercourse between animals of different kinds and between man and the brutes. This, also, as will be at once seen, was the direct outcome of the old notion of fertility between different genera.

It will be convenient to consider these matters under four headings:—(1), Alterations in the male semen; (2), menstrual influences; (3), alterations in both the male and female elements; and (4), hybridity.

(1.) The theory that monstrous infants are the result of *unusual conditions of the paternal element in generation—the male semen*—is a very old one; it seems first to have been expressed by Empedocles of Agrigentum, in Sicily, a physicist living between the years 495 and 435 B.C. He has been called the "father of the evolution idea,"[1] and seems to have had some knowledge of embryology and teratology. Empedocles, like Lucretius some four centuries later, recognised what may be called a teratological stage in the world's history when animals appeared, spontaneously generated, as incomplete individuals—"heads without necks, arms without shoulders, eyes without their sockets"—and when through the fortuitous union of these parts with one another all sorts of monstrous forms came into being, soon, however, to become extinct through the absence of reproductive powers. But it is rather with the views that this philosopher advanced to explain the origin of monstrosities after Nature had succeeded in producing normal permanent animal types that we have here to do. As Plutarch[2] relates, Empedocles thought that monsters happened either from abundance or from defect of the semen, from slowness of movement, from division of it into several parts, or from aberration of the movement. Although five states are here enumerated, only three ideas really exist, these being the notions of excess, of defect, and of alteration of the semen. Curiously enough, these are precisely the ideas which underlie recent views, not, indeed, of the causation of teratological products, but of their classification. For the primary division of monstrosities into *monstra per excessum*, *monstra per defectum*, and *monstra per fabricam alienam*, which Förster employed, or into *monstra deficientia*, *monstra abundantia*, and *monstra sensu strictiore deformia*, as Otto recommended, cannot yet be said to have been improved upon. So in a certain sense it may be said that the views advanced so long ago by the Sicilian physicist live still; and there can be no doubt that they were widely accepted by Greek, Roman, and mediæval authors.

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[1] Osborn (H. F.), *From the Greeks to Darwin*, p. 37, New York and London, 1894.

[2] Plutarch, *De placit. philos.*, lib. v., c. 8.

The teratogenic theories of Democritus of Abdera, another physicist of the same age as Empedocles, did not take a very firm hold upon the philosophic mind. As we are told by Albertus Magnus,[1] Democritus thought that double monsters were generated when the semen belonging to one or to two species was introduced into the uterus repeatedly at intervals; to begin with, the first semen reached the womb and sufficed to form the new being; soon thereafter the second semen arrived, mixed with the first, and began to operate in its turn; and so the members came to be duplicated. The abuse of coitus was thus made out to be a teratogenic factor.

Neither Empedocles nor Democritus ascribed to the female any formative power in the matter of generation; Aristotle, on the other hand, did so, and in consequence of this his theory of teratogenesis included faults in the female element in reproduction as well as in the semen. The Aristotelian hypothesis, therefore, was one which recognised a dual cause, and as such it will fall to be discussed immediately; in the meantime it may be said that through its weighty authority the case of the theories which looked for solely a seminal or solely a menstrual teratogenic factor was greatly weakened. Nevertheless Galen, living in the second century of the Christian era, seems to have believed in a purely seminal theory, for he thought that hermaphrodites were due to the entrance into the uterus of spermatic fluid from both the testicles.

The Arabian physicians during the Dark Ages in Europe served to perpetuate the doctrines of the past, and prominently those of Aristotle; but Avicenna, like Galen, sought for an explanation of the origin of hermaphrodites along the lines of the older theories, for he believed that whilst semen deposited in the left side of the uterus resulted in the birth of a girl, and in the right side in that of a boy, the male element when placed in the middle of the cavity gave rise to the procreation of a hermaphrodite.

In Europe in the thirteenth and fourteenth centuries certain contributions were made to the study of the causes of monstrosities; but the question was greatly complicated by the introduction of the terms "materia" or "material" instead of semen, and by the supposition that this materia had a formative virtue or faculty.

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[1] Albertus Magnus, *De animalibus*, lib. xviii., c. 6.

In this way confusion was the result, for "materia" came to be applied to the menses as well as the semen, and the "formative faculty" was an idea which encouraged all sorts of profitless theorisings. To some of these hypotheses allusion will be made immediately when the causation of monstrosities through faults in both male and female elements in generation is under consideration. Here it may simply be said that the theory of Empedocles never again came to be accepted fully, although the discovery by Leeuwenhœk (in 1677) of spermatic animalcules in the semen gave a temporary support to the notion that after all the male element might be the chief, if not the sole teratogenic factor. With the discussion of the influence of the spermatozoa in producing monstrosities we have not at present to do; that is a matter to be considered along with the theories of the present, not with those of the past.

(2.) The idea that *the menses* play an important part in the generation of monsters seems largely to have been the result of the Hebrew legislation regarding coitus during or immediately after the flow. In a non-canonical book (Esdras, Book iv., c. 5, verse 8), the following statement occurs:—"Menstruous women shall bring forth monsters" (*mulieres menstruatœ parient monstra*); and in the Talmud the infant conceived during the period of impurity was regarded as certain to be an epileptic, a cretin, a drunkard, or insane. At the same time indications of a similar belief are to be found in the records of classic mythology, for it is said of Vulcan, who was so deformed at his birth that his mother in disgust threw him into the sea, that he was begotten by Jupiter when Juno was menstruating.[1] Witkowski (*Histoire des Accouchements*, p. 335, Paris, 1887), refers also to this belief, which he regards as a very common one, and quotes the following lines in which it is embodied in verse:—

> "Femmes qui désirez de la progéniture,
> Durant le cours des mois respectez la nature ;
> Le fils de Jupiter, Vulcain, ainsi concu,
> Vint au monde impotent, cul-de-jatte et bossu."

Aristotle and his followers did not admit the pre-eminence of the menses in teratogenesis; the menstrual blood or materia was only one factor in normal generation, and therefore also in abnormal generation. Nevertheless there were some who regarded the menstrual blood as of greater importance than the semen in the causation of monstrosities; thus Henricus of Saxony,[2] a pupil of Albertus Magnus, regarded teratological phenomena as due to deficiency or excess of the materia or menses. Paré,[3] also, amongst the numerous causes of monsters places intercourse between parents at such times as they ought to forbear by the command of God and the Church. Licetus, writing in 1616, mentions the menstrual flow at the time of conception as the seventh cause of the origin of shapeless monstrosities, and founds his belief on the passage in Esdras already referred to, and on a quotation from Solinus.

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[1] Another explanation of Vulcan's deformity was, of course, the notion that Jupiter was drunk at the time of his conception.

[2] Henricus of Saxony, *De Secretis mulierum*, c. 6, 1478.

[3] Paré (A.), *Works*, translated by Th. Johnson, p. 585, London, 1678.

When it is borne in mind that Pliny and many of the writers of the Middle Ages attributed to menstrual blood the most maleficent powers as regards vegetables, metals, glass, trees, and even animals, it is not to be wondered at that numbers of authors found in it at least one of the causes of deformed births. Towards the close of the seventeenth century, however, discoveries were made which revealed the hollowness of such beliefs; and it was from the investigations of Harvey and de Graaf, and from the light which they threw upon the true nature of the female factor in reproduction, that the menstrual theory of teratogenesis received its death-blow. We know now that anomalies in the female factor are frequently causes of monstrosities, but that factor is no longer the menstrual blood but the ovum.

(3.) The theory which regarded *alterations in both the male and female elements in generation* as the cause of monstrous forms may rightly be called the Aristotelian. Aristotle[1] (384 to 322 B.C.), by means of his great intellect and strictly scientific methods of research by experiment and induction, placed all the workers who followed him in the position of debtors. Even in the subject of teratology his views were far in advance of his time. The definition which he gives of monstrosities reveals an extraordinary degree of critical insight. It may be thus rendered:—"The monstrosity," he said, "is something contrary to Nature; or rather, not absolutely contrary to Nature, but contrary to that which occurs most commonly in Nature; nothing is produced contrary to Nature, inasmuch as it is eternal and necessary; this occurs only in the things which are most usually produced in a certain manner but which may be produced otherwise." Aristotle, also, refuted the opinion of Democritus concerning the origin of monstrosities; neither did he adhere to the theory of Empedocles, for he believed in the conjoint action of perverted states of both sperm and germ. He recognised the teratogenic power of faults in the materia which exists in the menstrual blood, and pointed out the more frequent occurrence of terata in the animals that produce many young ones. He was truly the founder of both human and comparative teratology, and as regards the latter subject his knowledge of the embryonic origin of double monsters in the hen's egg was really wonderful. Had he known that man also originates in an ovum, it is more than probable that he would have applied the facts of teratogenesis in the chick to human teratology, and so have discovered in the fourth century

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[1] Aristotle, *De generatione animalium*, lib. iv., c. 3 and 4.

B.C. what has been reserved for the savants of the nineteenth century A.D.

The doctrines of Aristotle were handed down by succeeding writers, Roman and Arabian, to the times of the Middle Ages in Europe, when Albertus Magnus, a Dominican monk (1193 to 1280 A.D.), accepted, but with modifications, the views of the Greeks concerning the production of monstrosities. The modifications were most unfortunate, and were destined greatly to obscure the original theories. Thus, Albertus admitted the teratogenic powers of the semen, but he used the word *materia* as a synonym; those who followed him lost sight of the real meaning of the term, and so great confusion was introduced. Again, Albertus ascribed to the stars the same powers in the production of monstrosities as he gave to the materia, and so gave his sanction to the supernatural notions of his time. He also believed with Aristotle that terata were less frequent in uniparous than in pluriparous animals. His disciple, Henricus of Saxony, held views to which reference has been already made. He seems to have regarded the materia as the menses, and he thought that all the causes of monstrosities might be reduced to two: disobedience of the materia, and its insufficience. He introduced, also, such secondary causes as faults in the uterus preventing the retention of the semen, and the position of the body during coitus.

Thomas Aquinas, another Dominican of about the same period (1225 to 1274 A.D.), introduced the idea of a formative power or faculty which acted upon the semen; and, like Albertus Magnus, he ascribed teratogenic properties to the heavenly bodies. With him indisposition of the materia was the immediate, and the effect of the stars the remote factor in teratology. Pietro di Argelata added the notion of a formative power or faculty to the doctrine of the Greeks, for in writing concerning supernumerary and large and small digits, he admitted that they were caused by excess or defect of the materia, but only if these were combined with a strong or a weak formative power. The last-named factor was the more important; indeed, with only a small amount of materia, a large part might be produced if the formative faculty were sufficiently great. Possibly in such a case the formative power made the materia more obedient to movement and more capable of extension.

In the early years of the sixteenth century ample evidence was forthcoming in the writings of the time to show how confused the original Greek theories had become. Bonacioli,[1] an author of this age, seems to have returned to the views of Empedocles with regard to the formation of fœtuses with supernumerary parts, hermaphrodites, and monstrosities showing defects; he also complicated matters by referring to a materia supplied by the woman as well as by the man. About the middle of this century Savonarola[1] wrote at some length on the generation of moles from the semen and menses, reproducing largely the opinions of Avicenna; he stated that some women, from impurity of the blood, gave birth not only to a true fœtus, but also to a piece of flesh resembling an animal, *e.g.*, a toad, falcon, lizard, etc.; this was due to an error in the second semen, and this error was the result of stellar influence. Varchi,[2] whilst he believed that the two principal causes of monstrosities were faults (qualitative and quantitative) in the male semen and in the menses of the woman, also recognised others, such as the state of the uterus and the secundines, the imagination, and the effect of the heavenly bodies. The last-named cause was introduced so as not to contradict the theologians.

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[1] Bonacioli (L.), *Enneas muliebris*, c. ix., Ferrara, about beginning of 16th century.

Towards the close of the sixteenth and beginning of the seventeenth century the tendency, already seen in Varchi's writings, towards a multiplication of the causes of monstrosities became very evident. Paré, for instance, enumerated eleven different teratogenic factors, and Licetus gave even a larger number for selection; but both these writers gave a very prominent place to faults in the material; thus the third and fourth causes of Paré were, "abundance of seed and overflowing matter, and the same in too little quantity and deficient;" whilst Licetus referred to such conditions as "defect of proper material," "inaptitude of the material," "feebleness of the formative or separative faculty," and the like.

It is unnecessary to quote further from the writers of this century (the seventeeth), for in all of them the same ideas are reproduced,—often, however, with a great deal of obscurity, and not uncommonly in language which has to us now little or no meaning at all. The embryological discoveries of the later part of the century so altered the notions of generation which had prevailed that the old teratogenic theories founded upon them fell to the ground. As we shall see later, their place was taken by new hypotheses, which in not a few instances embodied the notions of the ancients; and it came to pass that instead of talking of excess or defect or alteration of the semen, the menses, and the materia, teratologists began to theorise regarding faults in the spermatozoa, in the ovum, or in the product of their union, the embryo.

(4.) The theory which has now to be considered might quite well have been discussed with the preceding, for it has to do with conditions affecting the male and female elements in generation; but it has at the same time very characteristic features of its own, which serve specially to differentiate it. It may be termed the *hybridity theory* of teratogenesis, and it is founded upon the notion that animals of different kinds may be fertile with one another; the products of such unions are, however, monstrous. It was only an expansion of this doctrine to believe that deformed infants resulted from the cohabitation of the human subject (male or female) with one of the lower animals.

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[1] Savonarola (M.), *Practica major*, tr. vi., c. xxi., f. 269, Vinetüs, 1559.

[2] Varchi (B.), *Lezioni sopra la generazione dei mostri*, p. 101, Firenze, 1560.

"That which followeth is a horrid thing to be spoken; but the chaste mind of the Reader will give me pardon, and conceive that, which not onely the Stoicks, but all Philosophers, who are busied about the search of the causes of things must hold, That there is nothing obscene or filthy to be spoken." Thus wrote Paré[1] some three hundred years ago in his chapter entitled, "Of monsters by the confusion of Seed of divers kinds;" and, notwithstanding the boldness of a modern novelist, who has described, in *The Island of Dr Moreau*, a community of creatures half human and half animal, the theory under consideration is one over which it is not profitable long to linger.

The finding of an anencephalic human fœtus[2] preserved as a mummy in a sarcophagus reserved for sacred animals at Hermopolis, on the Nile, proves that in ancient Egypt the bestial origin of monstrosities was a common belief. The anencephalic fœtus had evidently been regarded as a monkey, an animal sacred in the eyes of the Egyptians, and having been the offspring of a woman, its conception had, doubtless, been ascribed to an act of unnatural intercourse. There is even evidence to show that in these times such acts were, under certain circumstances, looked upon as praiseworthy. Possibly the same views held also in ancient Chaldea; at any rate, the cuneiform tablets of Nineveh speak of a ewe giving birth to a lion, etc.[3] It is easy to understand how such beliefs arose when it is remembered that at the time all kinds of animals, including man, were supposed to be fertile with one another, and that the male was regarded as the sole factor in generation.

In the mythology of nearly all the races of mankind traces are to be found of similar notions. In the legends of the Greeks and Romans, for instance, mention is often made of the Minotaur, "semibovemque virum, semivirumque bovem;" of Echidna and Chimæra, offspring of Medusa; of Chiron the Centaur, half a man and half a horse; of Castor and Pollux; and of many others. But the conception of half human monstrosities was not an attribute of the gods of Olympus only; it was a faculty shared in by the humblest of mortals, as is witnessed by the tale which Plutarch[4] tells of Periander's shepherd and the centaur-like offspring of a mare. This same writer attributed to Aristotle the story of the beautiful daughter of Aristonymus of Ephesus, whose name was Onoscellis, which name suggests clearly her asinine origin.

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[1] The Works of Ambrose Parey. Transl. by Th. Johnson, p. 599, London, 1678.

[2] Geoffroy Saint-Hilaire, "Description d'un monstre humain né avant l'ère Chrétienne, etc.," *Ann. des sc. nat.*, vii. p. 357, 1826.

[3] Ballantyne (J. W.), "Teratological Records of Chaldea," *Teratologia*, i. p. 139, 1894.

[4] Berger de Xivrey (J.), *Traditions tératologiques*, p. 34, Paris, 1836.

This reference leads us naturally to the consideration of Aristotle's views upon the subject of hybridism. He[1] held that animals were only fertile with each other when the duration of their gestation-period was the same and when their size was similar. The offspring would resemble either of the parents. The case of the fox and the dog was cited, and Aristotle elsewhere[2] spoke of the products of the intercourse of heterogeneous animals in Libya, Cyrene, and Laconia. In this relation, as in so many others, Aristotle's more correct views were soon lost; and Pliny,[3] for instance, speaks of a bondwoman who brought forth a serpent, and of Alcippe, who was delivered of an elephant, "marie that was a monstrous and prodigious token, and foreshewed some heavie fortune that followed after." Pliny also states that "Duris maketh report, That certaine Indians engender with beasts, of which generation are bred certaine monstrous mungrels, halfe beasts and halfe men."

It is easy to imagine how such beliefs as those mentioned above grew and flourished in the period of intellectual darkness in Europe. Many traces of this are to be found in the writings of Vincent de Beauvais, of Bartholin, of Lycosthenes, of Rueff, and others. C. Stalpart vander Wiel, for instance, in his *Hondert seldzame Aanmerkingen*, pp. 234 and 248, Amsterdam, 1682, not only relates how a woman gave birth to a little dog ("Hondeken van een Vrouw geboren"), but even figures the prodigy, which seems really to have been a human otocephalic fœtus without a lower jaw. During this epoch it would seem that if a woman gave birth to a fœtus in any way resembling an animal she ran a very considerable risk of being burnt alive with her offspring, and with the animal who was supposed to have been her partner in the illicit commerce. Such a fate, Bartholin[4] tells us, befel a woman in Copenhagen, in the year 1683, as the result of the birth of an anencephalic fœtus. Suspicion also fell upon the animal who brought forth a fœtus in any way resembling the human type, *e.g.*, a hydrocephalic foal or calf; and I have already referred to the service which Albertus Magnus rendered to a shepherd when he announced that such a birth might be due to stellar influence, and not to the more popularly credited and criminal procedure.

With the revival of learning came attempts, not very active at first, to controvert the doctrine of the bestial origin of monstrosities, and the ancient views of Aristotle came again to the front, that animals could only be fertile with those of the same size whose period of utero-gestation was approximately of equal length.

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[1] Aristotle, *De generatione animalium*, lib. iv.

[2] Aristotle, *De animalibus historiæ*, lib. viii., c. 27, p. 227. (Bohn's translation.)

[3] Pliny, *Natural History* (Holland's translation), i. p. 157, London, 1601.

[4] E. Martin, in his *Histoire des Monstres* (p. 80), refers to this statement by Bartholin, but he gives no reference; and although I have searched Bartholin's writings, I have found no trace.

Martin del Rio,[1] a writer of the early part of the seventeenth century, while declaring that physically a cow could not give birth to a human fœtus, was yet of opinion that something of this kind could happen through a diabolic agency. Licetus,[2] however, in five chapters in the second book of his work, *De monstris*, opposed the doctrines of Del Rio, and endeavoured by copious references to cases, and by analogy with the vegetable kingdom, to prove that such unnatural unions may not only result in the birth of a human fœtus or an animal, but also in the production of monstrous forms partaking of the characters of both. Neither the legal nor the theological side of this matter were neglected by the writers of this century, and the question whether such offspring ought to be baptised caused much discussion.

Even near the close of the seventeenth century evidence is not wanting to show how persistent was the belief in this mode of origin of monstrosities; for instance, Paullinus,[3] in 1688, gravely writes of a "Monstrum canino-humanum cum flamma et fragore natum"; and Bartholin tells of a "puella ex cane nata" (*Hist. anat.*, *Cent. V.*, p. 166, 1661). It is true that Ambrosinus,[4] in his edition of Aldrovandus' *Historia Monstrorum*, had brought in other factors, such as the influence of the maternal imagination, to explain such births; but his suggestions do not seem to have been taken up very widely.

It is not till the beginning of the eighteenth century that we find a strong protest being made against the belief in the hybridity theory of teratogenesis. Bianchi[5] of Turin was amongst the first to point out that when the product of human gestation had a rough resemblance to an animal form this resemblance might be due to a fœtal disease, or the product itself might be a mole or retained portion of the placenta. Even at the present day, however, there still exists a strong popular belief in the old theory, and even in the ranks of the profession I have met with its adherents.

Now, there can be no doubt that the cases which gave rise to this belief and kept it in existence were those in which disease or deformity gave to the human fœtus an animal appearance, or in which the young of one of the lower animals, through the existence of such a condition as hydrocephalus, came to bear a rough resemblance to the human form. At the same time, the theory has a modern and scientific side, of which a great deal may yet be heard. To quote from such a skilled teratologist as Mathias

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[1] Del Rio (M.), *Disquisitionum magicarum*, lib. ii., quaest. 14, p. 331; Lovani, 1598–1600.

[2] Licetus (F.), *De monstris*, lib. ii., c. 68, 69, 70, 71, and 72, pp. 213 to 231; Patavii, 1668.

[3] Paullinus (C. F.), *Miscell. curios. med. phys.*, Dec. ii. Ann, vi.; Appendix, obs. xli. p. 48; Norimbergæ, 1688.

[4] Aldrovandus (U.), *Historia Monstrorum*, p. 385; Bononiæ, 1642.

[5] Bianchi (G. B.), "De naturali in humano corpore vitiosa," etc., pt. ii. p. 238, 1741.

Duval,[1] writing as recently as 1895, hybridity is a phenomenon of which little is known in the higher forms of animal life, but some day its discussion may form an important chapter in teratology; for it is quite possible that sterility between animals of different species may be due, not to an absence of impregnation, but to such an abnormal development subsequent to impregnation as to cause arrest by its very abnormality. This belief gains some support from the experiments of Pfluger and Smith,[2] Born,[3] and Gebhardt,[4] on the production of bastards among the amphibia.

Such, then, were the theories of the past, which regarded purely physical conditions as the causes of monstrosities; and with regard to them all it must be noted that the ideas underlying them exist still, but in an altered form, and expressed in different words. It will have been noticed also that there exists a much closer connexion between these theories of the past in their earliest form and the views of the present, than between the latter and the notions of the Middle Ages. The theories of Empedocles and Aristotle are, in other words, more nearly allied to those now in vogue than are the latter to those of Lycosthenes, Licetus, and Aldrovandus. I have regarded the discovery by means of the microscope of the human ova and spermatozoa as the boundary line between what are called theories of the past and those which I shall have soon to describe and designate theories of the present; but there can be no hard and fast dividing line in this matter, and it becomes an interesting subject for speculation to consider in what way the knowledge obtained from the use of the microscope might have influenced the teratogenic views of the early Greek philosophers.

I have now passed in review both the supernatural and the physical teratogenic theories of the past, and before proceeding to the discussion of another old yet ever new theory,—that, namely, of the effect of the imagination of the parents upon the infant *in utero*, —it must be pointed out that these hypotheses have not followed one another in chronological order, but have existed, more or less, side by side, and have even overlapped. For example, a belief in the teratogenic powers of the stars has been seen combating the notion of the hybrid origin of malformed infants, and this in its turn has been confronted with the view that the powers of evil are the potent factors in teratogenesis. At the same time, it is easy to understand how in certain epochs of the world's history certain opinions have been more widely held and more strongly insisted upon than in others.

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[1] Duval (M.), in Bouchard's *Traite de Pathologie générale*, i. p. 159, 1895.

[2] Pfluger and Smith, "Untersuchungen über Bastardirung," *Arch. f. ges. Physiol.*, xxxii. p. 519, 1883.

[3] Born, "Weitere Beiträge zur Bastardirung zwischen einheimischen Anurarten," *Arch. f. mikr. Anat.*, xxvii. p. 192, 1886.

[4] Gebhardt (W.), *Ueber die Bastardirung von Rana esculenta mit arvalis*, Dissertation, Breslau, 1894.

II.—SHORT NOTES OF TWO CASES OF OPIUM POISONING.

By James Ritchie, M.D., M.R.C.S. Eng., etc.

(Read before the Medico-Chirurgical Society of Edinburgh, 3*rd June* 1896.)

The following two cases of opium poisoning seem to possess features of sufficient interest to warrant the presenting short notes of them to the Medico-Chirurgical Society.

Case I.—About 6.30 on the morning of 12th April 1895 I was hurriedly summoned to a case, said to be one of poisoning. I took with me a syphon apparatus for washing out the stomach, and on arriving at the house was informed that the patient had dined heartily the previous evening about seven o'clock, that some hours later he had experienced severe pain over the heart, for which he had taken a dose of laudanum, and the friends were afraid that he had taken an overdose. The patient, a gentleman about 40 years of age, was in bed, pale, breathing slowly, pin-point pupils; he could be roused with difficulty, answered in monosyllables, and if left alone relapsed at once into somnolence. I at once injected subcutaneously about $\frac{1}{80}$ grain of atropine sulphate, got him out of bed, and with some trouble kept him awake in a chair until the œsophageal tube was passed and the stomach was washed out. A large quantity of partially digested food was removed with some difficulty, because of the occasional blocking of the tube. The material smelt strongly of opium, and it contained a large amount of mucus. The stomach was washed out till the water returned almost clear, then strong coffee was given, and assistants were obtained to keep the patient walking about. As the pupils were still small, a second subcutaneous injection of atropine was given, on this occasion $\frac{1}{150}$ grain. In the forenoon the patient was still drowsy, and craved to be allowed to sleep. As the day advanced he was permitted to rest at intervals. In the evening he was out of danger, and allowed to go to bed. It was found that the dose of laudanum taken was 2 ozs. Although he had occasionally taken small doses for sleeplessness, he was not in the habit of using opiates. The chief point of interest in this case is that although a large dose of a fluid preparation of opium was taken at night, it was found that six or seven hours afterwards the stomach still contained a large quantity, and therefore the symptoms of opium poisoning were not so profound as might have been expected in view of the long time which had elapsed after the taking of such a dose. The explanation is doubtless—*First*, that the dose had been taken when the stomach was full of food; *second*, that in consequence of well-marked gastric catarrh the dinner was only partially digested, and for the same reason only a small portion of the laudanum had been absorbed. This is a demonstration on a somewhat large scale of facts with which we are conversant in practice, viz., that for the immediate relief of severe pain in a patient who has much in the stomach, or in one who is the subject of severe gastric catarrh, it is of little avail to give morphine by the mouth. In such cases it should be given hypodermically.

CASE II.—On July 24, 1895, I was called between one and two o'clock A.M. to see a somewhat small man who had taken, not very long previously, about an ounce and a half of laudanum. He presented the ordinary symptoms of opium poisoning. The pupils were very small. He could be roused without much difficulty, but could not be made to give any account of his previous proceedings, and when left alone he at once fell asleep. Having shortly before that time read in the *British Medical Journal* a paper by Dr Moor, of New York, on "Permanganate of Potash as an Antidote in Opium Poisoning," I gave, in a large cupful of water, about an ounce of Condy's fluid, which was fortunately at hand in the patient's house, then went to get my syphon apparatus. Immediately after returning, the patient's stomach was washed out until water, with a small quantity of Condy's fluid added to it, returned unchanged in colour. A little Condy in water was then given to drink, and the patient was kept moving. He remained drowsy until the forenoon. This case seems to afford a good example of the power of potash permanganate to render innocuous preparations containing morphine.

Dr Moor (*British Medical Journal*, June 1895, p. 1369), after having experimented with morphine preparations, convinced himself that the morphine is oxidized, and that the manganese salt is reduced to hydrated manganese dioxide. He found that sulphate of morphine is decomposed much more rapidly than albuminous matter, such as white of egg,—that one grain of permanganate oxidizes one grain of morphine. Such confidence had he in the power of this remedy that, although he is very susceptible to the action of narcotics, he took on one occasion 3 grains of sulphate of morphine, followed in thirty seconds by 4 grains of potassium permanganate; and on another occasion, two hours after breakfast, he took 5 grains of sulphate of morphine, followed in a few seconds by 8 grains of the antidote dissolved in 8 ounces of water, and in neither case did he experience any effect from the narcotic. Recently in the *British Medical Journal* (May 16, 1896, p. 1193), Dr Luff, of St Mary's Hospital, records a series of experiments in which he mixed a known quantity of morphine acetate with vomit, and after thorough agitation a known quantity of potassium permanganate in solution was added. After a time careful examination was made, but not the faintest trace of morphine could be discovered. These experiments demonstrated that this salt of morphine is more readily oxidized than other stomach contents. Dr Luff advises that if laudanum has been taken and the quantity is known, 6 grains of permanganate should be given for every ounce of laudanum, that the stomach should be washed out, and as morphine is partly excreted into the stomach, it should be washed out two or three times at intervals of half an hour. As the antidote seems to be so certain in its action, such an unpleasant proceeding is surely unnecessary. Is it not sufficient after the first washing to give small does to be swallowed?

III.—ON THE USE OF PLASTER MOULDS AS A BASIS FOR MODELS IN GYNÆCOLOGY AND OBSTETRICS.

By D. Berry Hart, M.D., F.R.C.P. Ed.

(*Read before the Edinburgh Obstetrical Society, January* 29, 1896.)

For some time past I have been in the habit of taking moulds of the perineal region prior to operation, and have also taken them, apart from operation, in the abdominal and sacral regions in obstetric cases.

The casts of these in Cathcart's mixture have proved to be of value, not only in settling several disputed points, but also in enabling me to have models made illustrative of the various stages in perineal and cervical operations,—stages most difficult, if not quite impossible, to demonstrate to the student by diagrams. These models can also be photographed, and used as a basis for drawings.

I therefore purpose bringing before you to-night the methods I have employed, and the various casts and models obtained, remarking at the same time on some of the views and suggestions they give.

I shall take up therefore—(1.) Methods. (2.) Use in Obstetrics. (3.) Use in Gynæcology.

(1.) The Method.—This is quite simple, and I can best illustrate it by giving as an example what is done in a case where one has to operate in a perineal tear involving the anus. The patient being in the lithotomy posture, the parts are cleansed and shaved as usual, and the ordinary antiseptic precautions taken. Several sheets of strong paper are then taken, and so applied between the sacrum and operating table and to the outer aspects of the thighs as to form a space into which plaster can be poured. It must be seen that the apposition is such as to allow of no leakage. Plaster is then prepared, poured into the space, and allowed to set. This takes place in a few minutes. The plaster must not be too thin, and should be made with water slightly warmed. It is then removed, the parts cleansed, and the operation gone on with.

From this mould a cast in Cathcart's mixture should be taken. This gives all the delicate lines in the plaster mould. For the various models we require duplicates in plaster, as on them lines of incision can be traced, and deep grooves can be made into which flaps of denoline can be inserted. This was done for me by Dr Fothergill of Manchester, whose account of the plan he found best is as follows:—

"The first cast was got in plaster directly from the original mould, the process involving the destruction of the mould. In order to get further casts a gelatine mould was made from each original cast, and from the gelatine mould copy after copy was taken in plaster, without injury to the mould. Having got the plaster casts, they were allowed to dry thoroughly, and were then finished with sandpaper, and covered with a few coats of a drying oil, such as boiled linseed. Ordinary oil paint was then used for colouring. To get a dead surface it was only necessary to mix turpentine with the paint, any degree of shine being obtained by a similar admixture of varnish.

"When it was desired to show the stages of a plastic operation, the work was done before painting. The parts of the cast to be operated on were cut clean out with knife and chisel, and replaced with a plastic mass of denoline mixed with water. Taking a wet knife, the incisions were then made in the denoline, and the flaps raised and adjusted exactly as if operating on a patient. During the next few days, as the denoline was gradually drying and hardening, it could be cut, bent, and modelled with great ease. Finally, when quite dry, the surfaces of the denoline and the plaster next it were finished with sandpaper, and rendered ready for oil paint by a few coats of drying oil as before. The colour lies as well on the denoline as on the plaster, so that after painting it was impossible to distinguish between them. In doing this kind of work it is difficult to get a plastic material which will dry firm and strong. Sculptor's clay crumbles when dry if mixed with water, and if mixed with glycerine, will never dry. If mixed with a drying oil it lacks coherence after being kept for some time. Putty also, if made into thin flaps, lacks strength. Denoline, however, a patented plastic material, made by an Edinburgh firm, and sold by artists' colourmen for decorating picture frames, etc., exactly fulfils our requirements. It can be mixed to any consistence, and will adhere to any substance that is not greasy. By cutting a few grooves in a plaster surface it can be dovetailed into them, so as to make one mass with the plaster when dry. By mixing a few fibres of cotton wool with the wet denoline, additional strength can be given to it when very thin flaps of it are wanted. When dry it is like hard wood without any grain, and can be cut, sandpapered, and polished in almost any way. We can therefore recommend it strongly as a material for medical or scientific models."

(2.) USE IN OBSTETRICS.—I have here employed it in as yet only three instances. In the first place I took casts of the external abdominal surfaces at the end of the first stage, at the beginning of the third stage, and at the end of it. These are chiefly useful for class purposes, and show very well the great changes that take place in the abdominal contour at the various stages of labour. The second example of its use was in regard to the sacro-lumbar surface or lozenge boundary, known as the Raute of Michælis. This area is of importance, as enabling one to determine the posterior boundary for Baudelocque's diameter. In class lectures one can easily demonstrate this point on the bony pelvis, but this does not give the student what he needs—a demonstration of what he is to look for clinically. The cast enables one to do this. It is taken very easily, shows the boundaries of this space very well, and helps further in diagnosis. As is well known, the upper angle of this lozenge is greater in the rachitic pelvis than in the normal, and must vary very much in the spondylolisthetic form. The model also enables one to verify Schroeder's rule for ascertaining the posterior point clinically, and helps class-demonstration greatly. In a recent paper Stratz gives an interesting account of it, in its artistic and obstetric relations. The paper is well illustrated, and draws attention to some points neglected in this country. In the third place, I obtained a valuable mould of the perineal region in an old primipara while the head was passing, or, to use an old phrase, "crowning." The cast gives a very good idea of the distension, and affords an important series of measurements. Combined with the photographs I have already obtained in other cases, it enables one to give a more thorough description of the very last portion of the second stage than has hitherto been given in our ordinary text-books.

The measurements are as follows:—From centre of anus to anterior margin of perineum, 16 cms. The part of the head exposed measured 7·5 cms. by 4·7 cms. This gives, therefore, the diameters of the vulvar cleft at this stage. The perineal bulge is very well marked, and should be compared with the cast of the virgin genitals to be presently described. A photograph of another case taken some time before, shows the frontal suture mesial in the cleft. I think that in rigid perineum cases in hospital, similar moulds might be taken with advantage.

(3.) USE IN GYNÆCOLOGY.—I have employed this method most frequently in Gynæcology, for evident reasons. The following are the main cases in which it was done:—

External Genitals.—It is remarkable, considering how easily the observation can be carried out on the genitals, that the usual descriptions are so inaccurate. Recently Cullingworth has shown that the edges of the hymen are in apposition so as to form a vertical slit, with pouting edges. The fact is, that in observing such relations, one does not usually allow for the disturbance of the examining fingers. The casts I have taken have the great advantage of disturbing the relations as little as possible, the only thing requiring to be allowed for being the disturbance and separation of the labia majora by the lithotomy posture.

When so examined, we then find that the fourchette is really a loop of skin continuous with the labia minora, and with the inner edges of the loop in contact. Another point it shows clearly is, that the genitals do not lie on a flat surface, as an ordinary drawing represents them, but that their outline is the arc of a circle.

Models of the various stages in the operation for tear of the anus, for prolapsus uteri, and amputation of the cervix.—I need not give any detailed description of these models. It is impossible to give the student an accurate idea of these operations from diagrams, but the models make the stages evident, and can be studied by the learner at his leisure.

I have also taken casts of the parts with the speculum *in situ*, and used these as a basis for the stages of hysterectomies. All the models are not, however, ready yet.

These methods seem to me well worthy of attention from teachers, as they aid in demonstration immensely.

IV.—AUTOSCOPY OF THE LARYNX AND TRACHEA, OR DIRECT EXAMINATION WITHOUT THE AID OF THE LARYNGEAL MIRROR, INTRODUCED BY DR ALFRED KIRSTEIN OF BERLIN.

By Logan Turner, M.D., F.R.C.S. Ed.

(*Read before the Medico-Chirurgical Society of Edinburgh, 3rd June* 1896.)

The principle of this method of examination consists in bringing the interior of the larynx and trachea *directly* under the eye of the observer without the use of the laryngeal mirror, and consequently without dealing with any reflected image. The method is called autoscopy; the instrument employed is the autoscope.

Five conditions appear to be necessary for the satisfactory carrying out of this examination :—

1*st.* There must be a straight line between the aperture of the mouth and the interior of the larynx and trachea : the angle which naturally exists in the ordinary posture of the head, between the buccal cavity and the assumed upward prolongation of the trachea, must be got rid of. This is done by raising the patient's head until it forms an angle of about 60° with the axis of the trunk.

2*nd.* All prominences which project into the lumen of the canal and obstruct the direct view downwards must be effaced : the base of the tongue and the epiglottis are the two structures which thus interfere with the line of vision. The base of the tongue is kept in the required position by a spatula, which must press upon the posterior part of the tongue immediately *in front of* the epiglottis. The epiglottis is raised and drawn forwards by this same pressure on the base of the tongue, and by drawing on the glosso-epiglottic ligament which so closely unites the epiglottis with the tongue. In operating on the larynx by this method a spatula is introduced *behind* the epiglottis, and in this way it is removed from the line of vision.

3rd. The larynx and trachea must be efficiently illuminated: this is most frequently done by an electric lamp placed in the handle of the autoscope, though it may be obtained instead by an electric lamp attached to a forehead band.

4th. The patient must be able to bear the necessary pressure on the tongue.

5th. The examiner must have some experience and dexterity in the manipulation of the instrument.

These two last conditions must be considered to some extent together, for while many patients are quite unable to submit to the amount of pressure required for depressing the tongue and drawing forward the epiglottis, much discomfort may be superadded by want of dexterity on the part of the examiner.

The Instrument.—The spatula, of nickel-plated palladium, which can be cleaned by boiling, is 14 cms. in length, slightly hollowed out on its upper surface, and slightly curved backwards at its distal end, where it is notched to receive the central fold of the glosso-epiglottic ligament; it is fixed at right angles to the handle of the autoscope. It is provided with a small sliding plate, which is adjusted to the proximal end of the spatula, the two together forming a short tunnel 4-5 cms. in length, through which the light is transmitted, and through which instruments for operative purposes may be passed. The spatula for introduction behind the epiglottis is longer, and is straight in its entire length.

The handle is provided at the end which receives the spatula with an electric lamp, the rays from which, by means of lenses, are directed along the spatula into the cavity of the larynx; the wires from an electric battery are attached to the other end of the handle, and by means of a button the current may be made or broken at will.

The Examination.—The examiner stands in front of the patient, who is seated on a chair with the head in the position already indicated. All false teeth should be previously removed; the spatula, slightly warmed, is then introduced with the electric current in contact, so that the buccal cavity is illuminated, thus permitting of an accurate placing of the end of the spatula immediately in front of the epiglottis; the handle is raised until the proximal end of the spatula, covered with the sliding plate already described, comes in contact with the teeth of the upper jaw; simultaneously its distal end presses the base of the tongue downwards and forwards. In a satisfactory case the examiner, looking along the spatula, will observe the epiglottis being raised and drawn forwards; then the arytenoid cartilages will come into view, the posterior wall of the larynx, the false and true cords, and, lastly, the trachea, and even its bifurcation may be visible.

No violence must be used; the movements employed for depressing the tongue must be rapid and certain, but not sharply or painfully carried out, and considerable experience is necessary for satisfactorily conducting the examination. In difficult cases, after preliminary failure, the mucous membrane may be sprayed with cocaine, and where the spatula is introduced behind the epiglottis and an operation contemplated, then cocaine should be employed.

There appears to be considerable variation in the amount of success attending this procedure. While many patients are quite unable to bear the pressure necessary for the drawing forward of the epiglottis, others again bear it without any feeling of discomfort. With the former it is impossible to conduct the examination satisfactorily; with the latter a good view of the interior of the larynx may be obtained; but even with these this is by no means always the case, because careful and repeated manipulation fails to draw the epiglottis sufficiently forwards even to permit of a view of the arytenoid cartilages. Dr Kirstein, as quoted by P. Bruns, saw the whole of the larynx in only one-fourth of the cases examined, the posterior part of the larynx in one-fourth to one-half of the cases. In three cases of laryngeal simple tumours recorded by Bruns himself, it was possible in one case to remove the greatest part of the tumour by the direct method; in the second case only the posterior part of the tumour could be seen; and in the third the growth could not be seen at all, so that in these two last cases the growths had to be removed in the usual way with the use of the laryngeal mirror.

Autoscopy will not take the place of ordinary laryngoscopy, nor does Dr Kirstein suggest that it will; but he looks upon it as a valuable and real aid in diagnosis and treatment. In the case of children, who so frequently resent the ordinary method of examination, the experience of Bruns has been that they can be much more satisfactorily examined by the direct method. Kirstein in operating upon children by his method administers chloroform. The head is then drawn over the edge of the table and is held there by an assistant. The autoscope is held in the operator's left hand, the child's head being gradually raised or depressed until the required position is obtained, and then the necessary operation is carried out. The same position is employed by him for the mere examination of infants and young children, but without the aid of chloroform.

The instruments used for operating with the autoscope resemble in form the instruments used for the nose, the handle being fixed at an angle with the stem. For the larynx they measure from the bend to the point 20 cms. in length, while those for the trachea are somewhat longer. In other respects they do not differ from the instruments in ordinary use.

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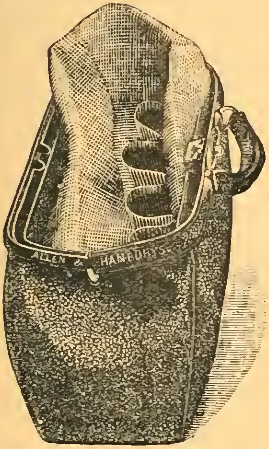

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One of the earliest descriptions of this method of laryngeal examination will be found in the *Berl. klin. Wochenschrift*, 1895, No. 22; while the most recent paper by Dr Kirstein on this subject is in the *Annales des Maladies de l'Oreille*, etc., for March 1896.

V.—PUERPERAL PULMONARY THROMBOSIS, WITH AN ILLUSTRATIVE CASE.

By J. Lamond Lackie, M.D., M.R.C.P.E.

(*Read before the Obstetrical Society of Edinburgh*, 12*th February* 1896)

Mr President and Gentlemen,—Rapid death occurring in the puerperium may result from various causes, such as from continued exhaustion following post-partum hæmorrhage, from rapid septicæmia, from cerebral embolism, or from pulmonary thrombosis, but these cases must be distinguished from those in which death is really sudden, coming on with a lightning-like stroke, without a moment's warning, while the patient is apparently perfectly well. This *sudden* death may occur under various circumstances, the most important of these being from syncope, the entrance of air into the uterine veins, pulmonary embolism, or from pulmonary thrombosis. No doubt pulmonary embolism, in which the clot has travelled from a peripheral vein, is the commonest of these, but so long ago as 1849 Dr Meigs first pointed out that primary thrombosis in the right ventricle or in the pulmonary artery, or in both, might occur, and prove a cause of sudden puerperal death. Since then several important papers have been written on the subject, the most exhaustive being those of Barnes and of Playfair. The latter made a careful analysis of twenty-five cases of sudden death after delivery in which accurate post-mortem examination had been made, and in fifteen of these he attributed death to pulmonary thrombosis. I am well aware of the existence of the excellent paper on this subject which Dr Church read before the Society four years ago, but since my case in many respects differs very markedly from his, I venture to report it, even at the risk of repeating much that has been better said by him. Dr Church's patient lingered for three days after the onset of symptoms, while mine was one of sudden death; and since so very few cases of this terrible complication of the puerperium are recorded, I feel justified in bringing before the Society the record of one of which I had charge some time ago.

Mrs K., a strong, healthy, somewhat stout primipara of 26, was confined of her child on February 27, 1892. During pregnancy she enjoyed good general health, but during the last few weeks of gestation anasarca of the lower limbs was so great that she was obliged to spend most of her time in the recumbent position. The urine was examined occasionally, but at no time was there the slightest indication of albuminuria.

The first stage of labour was practically painless, and when I was called at 5 P.M. I found the membranes ruptured, the os fully dilated, and the head in the L.O.A. position well down in the pelvis. Within an hour the child was born by natural efforts, and the placenta, which was normal, was expressed with ease twenty minutes later. It is important to note that there was lost during the labour and post-partum an unusually small quantity of blood. This I remarked at the time to the nurse in attendance.

The patient had a perfectly normal puerperium. Except for a slight rise of temperature on the third day, due to the development of the mammary function, there was no fever, and her pulse, so far as I observed, never rose above the rate of 80 per minute. On the eleventh day she was lifted on to a couch, where she lay for an hour and a half, and then she seemed perfectly well. On the twelfth, at 3 P.M., she got up and walked from the bed towards an easy-chair at the fireside, a distance of about 12 feet. Just as she reached the chair she exclaimed that she was dying, complained of excessive shortness of breath, and instantly collapsed on the floor. Her face became livid, she struggled for breath, but very speedily became unconscious. I was with the patient within six minutes of the onset of the illness, but on my arrival she was just dying. The extreme lividity of her countenance was most marked; she had no pulse at the wrist, and gave no signs of life except an occasional effort at respiration. Ether was administered hypodermically and other restoratives applied, but the patient died within two minutes of my entering the house.

A post-mortem examination was made on the subsequent day, and this revealed the following facts:—The uterus was normal in size, the fundus being just above the brim of the pelvis, but it was somewhat flabby. The cavity was normal and quite aseptic. There was no indication of clotting in the veins of the pelvis, nor in the femoral veins, at least in their upper part. All the organs of the body seemed healthy, but on opening the pulmonary artery there was found a thrombus, white, dense, and fibrinous, adherent to especially one side of the vessel, and extending into both branches and their ramifications for some distance. On the surface of this clot there was more recently coagulated blood. The right ventricle of the heart was also occupied by a recent dark purple clot.

This condition of pulmonary thrombosis I considered the cause of the death of the patient.

It is interesting to note that there were absolutely no premonitory symptoms to lead one to anticipate the awful catastrophe which occurred. The patient had a normal labour, and apparently a normal puerperium up to within six minutes of her death. The œdema of her legs had entirely disappeared, and there were no complaints of symptoms which would lead one to suspect thrombosis in any peripheral veins or in the large vessels of the thorax.

The question naturally arises—Was this a case of embolism or of primary thrombosis?

Some authorities, especially Virchow, hold that primary thrombosis of the pulmonary arteries is a mechanical and physiological impossibility, and attribute all obstructions to the circulation in these vessels to the transference of a clot from some portion of the peripheral venous system. The embolism in such cases either actually blocks the artery or gives rise to a nucleus round which deposition of fibrin takes place. Virchow holds that the primary factor in thrombosis is stagnation of the blood current, so that the impulse impacted by the action of the heart is sufficient to prevent coagulation taking place, and he further believes that the only condition which gives rise to pulmonary thrombosis is some obstruction to the circulation in the lungs, such as that which occurs in emphysema.

On the other hand, Benjamin Ball thinks that it is quite possible that spontaneous coagulation may occur, at least in the smaller branches of the pulmonary artery, just as in peripheral veins; while Barnes, Humphry, and Playfair affirm that under certain conditions it may occur in even the main vessel and its larger branches. Dr Humphry says:—"The artery breaks up at once into a number of branches, which radiate from it at different angles to the several parts of the lungs. Consequently a large extent of surface is presented to the blood, and there are numerous angular projections into the current, both of which conditions are calculated to further the spontaneous coagulation of fibrin."

These authorities believe that cases of sudden pulmonary embolism and of pulmonary thrombosis can be differentiated clinically, not so much from the actual symptoms, which are practically identical in the two conditions, but rather from, especially, the date of the occurrence of the fatal issue, and the presence or absence of the signs of peripheral thrombosis. They have pointed out that, whereas in the case of embolism the symptoms come on late in the puerperium, in most cases after the nineteenth day—that is to say, when the peripheral thrombus has begun to soften and break down—primary pulmonary thrombosis corresponds in its date of occurrence with the date at which primary peripheral coagulation usually occurs,—that is, between the eighth and the sixteenth day, but sometimes as early as the second or third.

In all of the fifteen cases collected by Playfair, with one exception death occurred before the fourteenth day. Further, he has observed one or two cases in which, after distinct signs of pulmonary obstruction have shown themselves without proving immediately fatal, peripheral thrombosis, in the form of phlegmasia dolens, has commenced. In such the peripheral lesion is followed by, or is coincident with, the pulmonary, both being the result of a common cause.

Post-mortem, the difference between the two conditions can as a rule, though not always, be determined. In the cases of pulmonary thrombosis there is found no peripheral clot, and that in the artery is firm, dense, and white in colour, with a small rounded head, pointing in the direction of the heart, resembling in every respect that which is found in a peripheral vein in which the blood is the subject of coagulation. In the cases of embolism of the pulmonary artery one finds a small clot forming a nucleus of similar texture to that found in the peripheral veins, and this embolus is surrounded by more recent fibrin, which some say can be readily distinguished from the clot which has travelled from a vessel at a distance.

Barnes has pointed out that pulmonary thrombosis is commoner among primiparæ, whereas phlegmasia alba dolens and embolism are more frequently found among multiparæ. Playfair suggests that there may be a greater tendency to deposition of fibrin in the first than in any subsequent labour, but this has not been proved.

As regards the conditions which predispose to the occurrence of puerperal pulmonary thrombosis, it is observed that during pregnancy and the puerperium there is an excess of fibrin in the blood, and that after labour there is circulating in the blood a large amount of effete matter, owing to the involution of the uterus. Further, post-partum patients are often feeble, exhausted, and suffer from weak action of the heart; and this is especially the case after post-partum hæmorrhage,—so much so that many consider this complication the most important of all the predisposing causes. I should like here to point out that in the case I have just recorded the opposite condition prevailed, an unusually small quantity of blood being lost.

As regards exciting causes, unusual exertion is the most pronounced. The necessary blood cannot be supplied through the partially occluded vessels, syncope occurs, and this allows of further coagulation, which finally obstructs the circulation. In the same way, mental emotion causes a temporary retardation of the blood current, which favours an increase in the size of the thrombus, with obstruction of the vessel and death of the patient.

I need scarcely detail the symptoms of puerperal pulmonary thrombosis resulting in sudden death; they resemble in every respect those of pulmonary embolism so well and as a rule so easily recognised. The most striking point is the appalling suddenness with which they come on, without, in most cases, the slightest indication of impending danger. All at once, very often after some exertion, intense dyspnœa, during which the patient gasps, and struggles for breath come on, the heart fails, and speedily the sufferer dies with all the symptoms of asphyxia. The symptoms and signs of a case which is not suddenly but rapidly fatal were well illustrated and described in that reported by Dr Church.

In a very few cases recovery takes place, but these are very rare, and in such the diagnosis must always be uncertain. Still, several have been recorded in which the symptoms exhibited could be attributed to no other lesion, and in which the patients suffered from attacks, even repeated attacks, resembling, except in degree, those which in others proved fatal. Much stress has been laid on the fact that in some of those a distinct loud rasping murmur was heard in the pulmonary area, the vessel not being completely occluded, and this, as the thrombus was absorbed, gradually disappeared.

Probably many cases of supposed syncope, whether fatal or not, occurring during the puerperium are due to complete or partial obstruction of the pulmonary artery from thrombosis.

As regards the treatment of the condition, little or nothing beyond the administration of diffusible stimulants can be done; the attack generally proves fatal before a medical man reaches the patient. If, however, there is the slightest indication of partial obstruction of the pulmonary arteries during the puerperium, be it either from attacks of syncope or of dyspnœa, the recumbent position should be insisted upon for a prolonged period, and the patient in no way allowed to exert herself, while her diet should be liberal and nourishing. As suggested by Richardson, in such a condition most authorities administer ammonia as being the agent which keeps the blood fluid in the living body; but, on the other hand, Barnes recommended the use of mineral acids to counteract the already too alkaline state of the blood which exists when thrombosis has occurred.

Dr Church advocates very strongly, and with good reason, the inhalation of oxygen. He points out that when the pulmonary artery is partly occluded less blood reaches the lungs, but then if overcharged with oxygen it would carry more oxygen into the system, and thus the patient might be kept alive until the thrombus in the vessel or vessels was absorbed.

In conclusion, and to return to my own case after this brief account of the subject of my paper, I believe it to have been one of primary pulmonary thrombosis, and this for the following reasons:—

(1.) There were no symptoms or signs, before or after death, of peripheral thrombosis—neither in the extremities nor in the broad ligaments.

(2.) The catastrophe occurred on the twelfth day, before there was time for any softening of a peripheral clot, had such existed.

(3.) It occurred at the time when puerperal thrombosis supervenes, wherever the situation may be.

(4.) The appearance and relations of the clot suggested that it had been formed *in situ*.

(5.) The patient was a primipara.

I need scarcely add that the case was certainly not one of infective phlebitis, for there was no pus in the veins, no ulceration, no metastatic abscesses, and no fever.

VI.—NOTES OF SEVENTEEN CONSECUTIVE CASES OF DIPHTHERIA TREATED WITH ANTITOXIN.

By J. G. M'Naughton, M.B. C.M. (Edin.), Resident Medical Officer, City Hospital, Birmingham.

I thought the following notes, which contain a few remarks on antitoxin rash and albuminuria following antitoxin, might be of interest. Some of the cases were pretty severe, and in fairly young children; but in no case was there a fatal result. In the Table you will find the cases tabulated, and I will take the cases here in that order.

Case I.—W. R. (M., 4 years). *Dec.* 15.—Complained of throat; croupy, no membrane; respiration hurried. One hour after he first complained he was put in a steam tent, and 20 c. c. antitoxin injected. (The antitoxin used in each case was that of the British Institute of Preventive Medicine, and the diagnosis was verified there.)

Dec. 16.—Still croupy and aphonic; no membrane; recession of ribs. Injected 15 c. c. antitoxin.

Dec. 17.—Still croupy and throat painful. Dyspnœa not so great. Injected 10 c. c. antitoxin.

Dec. 18.—Breathing quietly; no membrane; voice better.

Dec. 20.—Improving generally; urine no albumen.

Dec. 23.—Urticaria-like rash on face, body, and limbs; no rise of temperature. Patches on face resemble confluent measles. Made a good recovery and had no paralysis.

Case II.—A. J. (M., 3 years). *Dec.* 18.—Fauces injected with membrane on palate and right tonsil. Temperature, 101°·6. Injected antitoxin, 20 c. c.

Dec. 19.—Membrane clearing; throat foul; antitoxin, 10 c. c.; no croup.

Dec. 20.—No albumen. Followed by broncho-pneumonia, but made a good recovery.

Case III.—A. L. (M., 4 years). *Dec.* 18.—Croupy; tonsils and faucial region injected; no membrane; restless, and slept little. Injected antitoxin, 20 c. c.

Dec. 19.—Throat still injected; no membrane; aphonia.

Dec. 20.—Throat œdematous; no membrane; no albumen.

Dec. 25.—Urticaria-like rash, face and body; large patches.

Jan. 4.—Pulse 100, regular.

Jan. 6.—Pulse 88, irregular both in force and time. Given liq. strych., ♏ij. four-hourly.

Jan. 7.—Pulse 84, irregular still. Pain in abdomen. Three loose motions in last twenty-four hours, with blood in last. 11 p.m.—Frequent motions, only blood and mucus being passed.

Given milk and lime-water, and starch and opium enemata. Much collapsed; pulse 134, and poor; brandy, ʒj. four-hourly.

Jan. 8.—Two motions; no blood; pain gone.

Jan. 10.—Bowels all right; pulse again slow and irregular.

Jan. 16.—Pulse 54, very irregular still. Getting liq. strych. still.

Jan. 20. — Pulse 86, and much improved. Made a good recovery.

CASE IV.—W. B. (M., 3½ years). *Dec.* 19.—Membrane on both tonsils, and slightly aphonic. Treated with liq. sodæ chlorinat. Injected antitoxin, 15 c. c.

Dec. 20.—Membrane clearing; still syringing.

Dec. 21.—Patch of membrane still on right tonsil. Injected antitoxin, 15 c. c.

Dec. 22.—Membrane clearing.

Dec. 24.—Antitoxin rash on body and legs; no temperature with rash. Trace of albumen before antitoxin, which still remained. This cleared up, and patient made a good recovery.

CASE V.—L. F. (F., 5 years). *Dec.* 19.—Patch of membrane on right tonsil. Hoarse, and cough croupy. Steam tent, which improved croup. Given antitoxin, 20 c. c.

Dec. 20.—Membrane gone; still croupy and hoarse. Antitoxin, 10 c. c.

Dec. 21.—Throat clean, though still hoarse.

Dec. 23.—No albumen, and made a good recovery.

CASE VI.—F. D. (F., 3½ years). *Dec.* 21.—Fauces injected; no membrane; throat painful, and patient croupy; no temperature; steam tent. Given antitoxin, 20 c. c.

Dec. 22.—Throat dirty with mucus; no membrane; still croupy.

Dec. 23.—Still croupy; no membrane. Injected 10 c. c. antitoxin.

Dec. 24.—Breathing better.

Dec. 26.—Comfortable; no albumen.

Dec. 28.—Antitoxin rash on limbs, body, and face, with rise of temperature.

Dec. 29.—Rash still present; gone in evening. Made a good recovery.

CASE VII.—H. G. (M., 2 years). *Dec.* 22.—Membrane on left tonsil. Antitoxin, 20 c. c. Throat syringed with liq. sod. chlorinat.

Dec. 23.—Throat still foul, breathing rapid, and pulse poor; croupy cough and some recession.

Dec. 24.—Membrane still on tonsil. Antitoxin, 20 c. c.; pulse 160, poor.

Dec. 25.—Breathing more freely; croupy still; antitoxin, 10 c. c.

Dec. 26.—Membrane gone; cloud of albumen; no blood.

On *Jan.* 1 urine was free from albumen, and patient made a good recovery.

Case VIII.—J. M. (M., 4 years). *Jan.* 5.—Malaise; cough croupy; throat painful; fauces injected, and membrane on back of pharynx. Given steam kettle, and injected 20 c. c. antitoxin.

Jan. 6.—Still croupy; respiration rapid; some recession; no great cyanosis; membrane still on pharynx. Syringe with liq. sodæ chlor., and swab with tinct. benz. co. and carbolic acid.

Jan. 7.—Membrane cleared; still croupy; antitoxin, 10 c. c.

Jan. 8.—Throat clean; no recession; breathing better.

Jan. 11.—Membrane on both tonsils; antitoxin, 10 c. c., and syringe and swab as before.

Jan. 13.—Throat quite clear. Patient made a good recovery.

Case IX.—M. D. (F., 2¼ years). *Jan.* 7.—Dyspnœa and croupy cough; sick once. Given steam kettle. Membrane on uvula and both tonsils. Throat swabbed with carbolic acid and tinct. benz. co. Great difficulty in feeding; can swallow very little.

Jan. 8.—Sick during night; membrane still present; recession great, and pulse very poor. Antitoxin, 10 c. c. Taking very little by mouth. Getting two ounces peptonised milk with one drachm brandy every three hours per rectum. Retained enemata.

Jan. 9.—Cyanosed; great dyspnœa and recession. Patches of consolidation in chest on both sides, with bronchial breathing; no accompaniments. Broncho-pneumonia. Respirations, 80 per minute; pulse, 160.

Jan. 10.—Dyspnœa still great; recession not so bad; tonsils and uvula cleaner; still some membrane; still getting peptonised enemata; resp., 72 per min.; pulse, 160; getting expectorant, ammon. carb., spir. chlor., and spt. ætheris.

Jan. 11.—Still some membrane, so gave 10 c. c. antitoxin; resp. still 72 per min.; no accompaniments, though still patches of dulness.

Jan. 12.—Resp., 56; pulse, 120; no accompaniment; throat clean.

Jan. 13.—Resp., 80; pulse, 140; liq. strych., ♏j., tinct. digit., ♏ij., every four hours.

Jan. 14.—Resp., 80; pulse, 140; abundant crackles all over chest; still being fed with enemata, but taking more peptonised milk by mouth.

Jan. 15.—Resp., 72; pulse, 136; crepitations still abundant; urine cloud of albumen.

Jan. 16.—Resp., 60; pulse, 120; chest as before.

Jan. 18.—Resp., 32; pulse, 120; still crackles in chest; cough frequent and loose.

Jan. 20.—Chest clearing very well, and patient afterwards made a good recovery.

Case X.—M. U. (F., 5 years). *Jan.* 8.—Malaise; pain in throat; membrane on right tonsil, with some temperature; gave steam kettle; swabbed with tinct. benz. co. co., after syringing with liq. sod. chlor.; injected 20 c. c. antitoxin.

Jan. 9.—Membrane still present, and membrane from nose; injected antitoxin, 10 c. c.

Jan. 10.—Membrane gone from tonsil; still discharge from nose; throat is foul, with mucus.

Jan. 11.—Epistaxis; more membrane from nose with syringing, and passage through nose then quite clear; cough still croupy.

Jan. 12.—Breathing more freely; throat still foul; no membrane, and nose clear; urine shows trace of albumen.

Jan. 13.—More membrane on right tonsil; antitoxin, 10 c. c.; general condition good.

Jan. 14.—Throat clean; cough not brassy; taking nourishment well, and sleeping well; still hoarse.

Jan. 17.—Still trace of albumen; still hoarse.

Jan. 20.—No albumen; double otorrhœa; no pain in ears complained of before this.

Ears discharged for some time, and patient made a good recovery.

Case XI.—A. E. (F., 12 years). *Jan.* 8.—Throat sore; fauces injected, and back of pharynx coated with mucus; malaise; no croupy cough.

Jan. 9.—Membrane on left tonsil and anterior pillar of fauces, also rhinitis, membranous, with membrane from nose; swabs taken for cultivation both from throat and nose, and bacilli Klebs-Löffler found in both; steam tent; liq. sod. chlor. and tinct. benz. co. co., locally; antitoxin, 20 c. c.

Jan. 10.—Still hoarse; throat foul, with membrane still present; antitoxin, 10 c. c.

Jan. 11.—Membrane clearing; throat injected still; antitoxin, 10 c. c.

Jan. 13.—Throat clean; nose discharging freely, and can be syringed through; taking nourishment well, and general condition very fair; urticaria-like patches on thighs and around knees,—probably due to antitoxin.

Jan. 14.—Patches on thigh fading; throat foul still.

Jan. 18.—Throat clean, and nose clearing up; no albumen in urine.

Jan. 21.—Urticaria rash on both arms, flexor surfaces, smaller patches than those on thighs.

Improving generally, and ultimately made a good recovery, with no chest trouble.

Case XII.—F. T. (M., 4 years). *Jan.* 12.—Temperature; throat foul; no membrane; tonsils slightly enlarged; back of pharynx dirty. Same evening—membrane on left tonsil; steam tent; liq. sod. chlor., and gave 20 c. c. antitoxin.

Jan. 13.—Membrane still on left tonsil, and fresh membrane on back of under surface of soft palate; breathing hurriedly, and hoarse.

Jan. 14.—Membrane separated with syringing after antitoxin, 10 c. c., yesterday.

Jan. 15.—Throat clean; restless; question of otitis; temperature, 103°·4, reduced to 101° with sponging; pulse, 160; resp., 36; chest clear.

Jan. 16.—Slept fairly well, but restless inclined; chest shows a few patches, with bronchial breathing; no accompaniments. Gave pneumonia jacket and expectorant with liq. strych., since pulse was poor; urine, no albumen.

Jan. 18.—Pulse, 160; resp., 40; still no accompaniment; throat quite clean.

Jan. 19.—Abundant crepitations with a few rhonchi; pulse, 120; resp., 56.

Jan. 20.—Cough frequent; pulse, 140; resp., 48; chest still gives abundant crackles; broncho-pneumonia is clearing up.

Jan. 21.—Pulse, 120; resp., 32; chest clearing rapidly; made a good recovery.

Case XIII.—L. T. (F., 5 years). *Jan.* 12.—Malaise; throat painful, injected, and foul, with patch of membrane on left tonsil; no nasal discharge; steam tent; liq. sod. chlor. and tinct. benz. co. co.; antitoxin, 10 c. c.

Jan. 13.—Throat cleaner; membrane gone.

Jan. 15.—Throat still injected and patient hoarse, so gave 10 c. c. antitoxin.

Jan. 16.—Small patch of membrane again on left tonsil.

Jan. 17.—Membrane cleared with syringing.

Jan. 20.—Throat quite clean, and made a good recovery. There was a slight rise of temperature, but no complications.

Case XIV.—H. C. (M., 9 years). *Jan.* 11.—Fauces injected; throat sore, and glands along sterno-mastoid on both sides enlarged and painful; no membrane.

Jan. 13.—Still injected; hoarse, but no membrane; still temperature, so injected 20 c. c. antitoxin, and syringed with liq. sodæ chlor.

Jan. 16.—No membrane; throat cleaner; antitoxin, 10 c. c.; still slightly hoarse.

Jan. 17.—Mucus in pharynx and fauces still injected, but no membrane; pulse irregular and first sound weak; given liq. strych. and tinct. digital., ♏ij. āā, four-hourly.

Jan. 19.—Improving, and throat quite clean; no albumen in urine.

Jan. 23.—Going on well, and making a good recovery.

CASE XV.—N. B. (F., 7 years). *Jan.* 8.—Malaise, with temperature; pains in body, especially in chest; glands along sterno-mastoid on both sides; throat sore; tonsils enlarged, and fauces injected with membrane on right tonsil; mucus on back of pharynx; hoarse, but not croupy. Syringed with liq. sodæ chlorinat., and injected antitoxin, 15 c. c.

Jan. 9.—Membrane cleared, but left raw surface; still injected throat, and throat foul. Antitoxin, 10 c. c.; hoarse still.

Jan. 10.—No fresh membrane, but still hoarse, and throat foul with mucus; being syringed four-hourly, and swabbed with carbolic acid and friar's balsam; cloud of albumen.

Jan. 11.—Throat cleaner, and patient more comfortable.

Jan. 14.—Improving; trace of albumen in urine.

Jan. 21.—Urticaria-like rash on face, body, and limbs—large patches, with white centres; general restlessness. Sponged with solution of sodæ bicarb., which gave some ease.

Jan. 22.—Rash gone and throat clean; trace of albumen still.

Jan. 24.—Patient doing very well; urine, no albumen.

CASE XVI.—F. P. (M., 7 years). *Dec.* 24, 11 P.M.—Croupy since 10 P.M.; complains of pain in throat; resp., 36 per min.; fauces injected; no membrane. At 12 midnight he had steam kettle and antitoxin, 30 c. c.

Dec. 25.—Membrane on right tonsil and uvula; still croupy, and glands on both sides along sterno-mastoid; resp., 28; pulse, 120. Liq. sodæ chlor. locally four-hourly to throat, and antitoxin, 10 c. c.

Dec. 26.—Part of membrane cleared from throat; not so croupy, and breathing more quietly.

Dec. 27.—Throat clean; still syringing; no albumen.

Dec. 29.—Throat clean; improving generally.

Jan. 6.—No recurrence of membrane; no rash.

Jan. 14.—Making a good recovery.

CASE XVII.—V. C. (F. 4 years). *Jan.* 13.—Complained of pain in neck, and glands were enlarged on both sides of the neck. Malaise; slight rise of temperature, 99°·4; fauces injected; tonsils enlarged slightly, with two patches of membrane on right tonsil. Throat syringed with liq. sodæ chlorinat.

Jan. 14.—Membrane still present. Injected 20 c. c. antitoxin.

Jan. 15.—Membrane separated with syringing; nasal discharge, but no membrane from nose.

Jan. 16.—No fresh membrane; no albumen in urine; fauces still injected.

Jan. 23.—No recurrence of membrane, and patient going on very well.

In all the above cases the Klebs-Löffler bacillus was isolated at the Institute of Preventive Medicine, and the antitoxin used was that supplied from the same place.

Name.	Sex.	Age.	Date of Attack.	State of Throat.	Klebs-Löffler Bacillus.	Treatment.	Dates of Antitoxin and Amount.	Antitoxin Rash.	Urine before Antitoxin.	Urine after Antitoxin.	Result.
W	M.	4	Dec. 15, '95.	Fauces injected; croup; no membrane; dyspnœa and recession.	Found.	Steam kettle; no local.	Dec. 15. 20 c. cm. ,, 16. 15 c. cm. ,, 17. 10 c. c.	Dec. 23. Face, body, and limbs.	No albumen.	No albumen.	Cured.
A. J.	M.	3	Dec. 18.	Membrane on palate and right tonsil.	Found.	Liq. Sod. Chlor. (Tint. Benz. Co. and Acid Carbolic).	Dec. 18. 20 c. c. ,, 19. 10 c. c.	None.	No albumen.	No albumen.	Cured.
A. L.	M.	4	Dec. 18.	Tonsils and uvula injected; no membrane; croupy; C.; temp. 101°.	Found.	Liq. Sod. Chlor.	Dec. 18. 20 c. c. ,, 19. 10 c. c.	Dec. 25. Face and legs.	No albumen.	Trace of albumen; no blood.	Cured.
.	M.	3½	Dec. 19.	Membrane on both tonsils.	Found.	Liq. Sod. Chlor.; Tinct. Benz. Co. Co.	Dec. 19. 15 c. c. ,, 21. 10 c. c.	Dec. 24. Body and legs.	Trace of albumen.	Trace of albumen; no blood.	Cured.
L. F.	F.	5	Dec. 19.	Right tonsil membranous.	Found.	Liq. Sod. Chlor.	Dec. 19. 20 c. c. ,, 10. 20 c. c.	None.	No albumen.	No albumen.	Cured.
F. D.	F.	3½	Dec. 21.	Fauces injected; no membrane; croupy.	Found.	Steam kettle.	Dec. 21. 20 c. c. ,, 23. 10 c. c.	Dec. 28. Limbs, body, and face, with temp.	No albumen.	No albumen.	Cured.
H. G.	M.	2	Dec. 22.	Membrane left tonsil.	Found.	Steam kettle; Liq. Sod. Chlor.; Tinct. Benz. Co. Co.	Dec. 22. 20 c. c. ,, 24. 20 c. c. ,, 25. 10 c. c.	Dec. 30. On face and legs.	No albumen.	Dec. 26. Cloud of albumen.	Cured.
J. M.	M.	4	Jan. 5, '96.	Membrane on back of pharynx; croupy and hoarse.	Found.	Steam kettle; Liq. Sod. Chlor.	Jan. 5. 20 c. c. ,, 6. 20 c. c. ,, 7. 10 c. c.	None.	No albumen.	No albumen.	Cured.
M. D.	F.	2¼	Jan. 7.	Membrane on uvula and both tonsils.	Found.	Steam kettle; Liq. Sod. Chlor.; Tinct. Benz. Co. Co.	Jan. 7. 10 c. c. ,, 8. 10 c. c. ,, 11. 10 c. c.	None.	No albumen.	Cloud of albumen; no blood.	Broncho-pneumonia Cured.
M. U.	F.	5	Jan. 8.	Membrane on right tonsil and membrane from nose.	Found.	Steam kettle; Liq. Sod. Chlor.; Tinct. Benz. Co.	Jan. 8. 20 c. c. ,, 9. 10 c. c. ,, 13. 10 c. c.	None.	No albumen.	Cloud of albumen; no blood.	Cured.
A. E.	F.	12	Jan. 8.	Membrane on left tonsil and uvula, and casts from both nostrils.	Found.	Steam; Liq. Sod. Chlor.; Tinct. Benz. Co. Co.	Jan. 9. 20 c. c. ,, 10. 10 c. c. ,, 11. 10 c. c.	Jan. 13. Patches on legs and thigh, and Jan. 21.	No albumen.	Trace of albumen; no blood.	Cured.
F. T.	M.	4	Jan. 12.	Membrane on left tonsil.	Found.	Steam; Liq. Sod. Chlor.; Tinct. Benz. Co. Co.	Jan. 12. 20 c. c. ,, 13. 10 c. c.	None.	No albumen.	Trace of albumen.	Broncho-pneumonia Cured.
L. T.	F.	5	Jan. 12.	Membrane right tonsil.	Found.	Steam; Liq. Sod. Cl.; Tinct. Benz. Co. Co.	Jan. 12. 10 c. c. ,, 15. 10 c. c.	None.	No albumen.	No albumen.	Cured.
H. C.	M.	9	Jan. 13.	No membrane; temp.; fauces injected.	Found.	Liq. Sod. Chlor.	Jan. 15. 20 c. c. ,, 16. 10 c. c.	None.	No albumen.	No albumen.	Cured.
N. B.	F.	7	Jan. 8.	Membrane right tonsil.	Found.	Liq. Sod. Chlor.	Jan. 9. 15 c. c. ,, 10. 10 c. c.	Jan. 21. Face, legs, arms, and body.	No albumen.	Trace of albumen.	Cured.
F. P.	M.	7	Dec. 24, '95.	Fauces injected; no membrane till Dec. 25 on uvula and right tonsil.	Found.	Steam kettle.	Dec. 24. 30 c. c. ,, 25. 10 c. c.	None.	No albumen.	No albumen.	Cured.
V. C.	F.	4	Jan. 13.	Two patches of membrane on right tonsil.	Found.	Steam kettle; Liq. Sod. Chlor.	Jan. 14. 20 c. c. ,, 15. 10 c. c.	None.	No albumen.	No albumen.	Cured.

Part of the good result in these cases with antitoxin was, I think, due to its prompt use. One of the above cases was seen at 11 P.M., and was not croupy or complaining at 9 P.M. At 11 P.M. it was isolated, put in steam tent, and at 12 midnight it had antitoxin, and did remarkably well.

The variety of diphtheria in Birmingham now has not been specially mild, as can be seen from the death-rate published for Aston district of the town.

Albuminuria.—Frederick Taylor gives the percentage of albuminuria in the course of diphtheria at from 30 to 60. Fagge quotes Eberth as saying 66 per cent., while Carmichael in *Disease in Children* says about 50 per cent.

In the above seventeen cases, after antitoxin we have eight with albuminuria, or about 47 per cent., so that in these few cases the antitoxin used does not seem to have caused much albuminuria.

Antitoxin Rash.—The eruption, as a rule, was of the urticaria type, and varied in its appearance from the fourth to the fourteenth day after the first injection of antitoxin. It was found in seven cases out of the seventeen, or fully 40 per cent. It occurred on the body, limbs, and face, and resembled a very confluent measles eruption. Occasionally there was a rise of temperature with it. As a rule it faded within twenty-four hours, and often much sooner.

The solution used to swab the throats after syringing with liq. sodæ chlorinat was

℞ Tinct. Benzoin Co., ℥i.
Acid. Carbolici liq., ♏xxx. M.

VII.—CHOLESTEATOMAS ORIGINATING IN THE FEMALE PELVIS.

By James Oliver, M.D., F.L.S., F.R.S. Edin., Physician to the Hospital for Women, London.

Case I.—*Cholesteatoma of the Ovary.*

Winifred M., æt. 36, and single, began to menstruate at the age of 15, and since the establishment of menstruation the discharge has recurred regularly every month without variation.

During the last three or four years patient has remarked that her abdomen has been increasing in size, and occasionally she has experienced a sharp shooting pain in the left iliac region.

Apart from an attack of "peritonitis," which she had at the age of 24, she has always enjoyed good health.

Physical Signs.—The abdomen is occupied by a somewhat flaccid and globular swelling, which extends from the pubes to the umbilicus.

Vaginal Examination—The cervix uteri is low, and is pushed forwards. The vaginal roof posteriorly to the cervix is pushed down by a globular and cystic swelling which is continuous with the abdominal tumour. With difficulty the uterus can be differentiated from the neoplasm, but it appears to be slightly adherent to it.

Operation.—On opening the peritoneal cavity the omentum had to be separated from the anterior abdominal wall, to which it was firmly adherent. The tumour was tapped, but it proved to be so adherent to the pelvic floor, uterus, and gut, that it was inexpedient to attempt its removal; it was consequently stitched to the abdominal wall and drained. Twenty-four ounces of fluid were removed at the time of the operation; it was of a dark amber colour, and floating in the fluid were observed a quantity of bright pearl-like bodies, which were found to be crystals of cholestearine. The interior of the cyst was mottled in appearance and not quite smooth, but there was no evidence of papilloma. The tumour was the right ovary.

It is three years since the operation was performed, and when the patient last reported herself, four months ago, she was quite comfortable and able to get about well.

CASE II.—*Cholesteatoma in the Broad Ligament.*

Emma H., æt. 27, and married seven months, has never been pregnant. Menstruation, established at the age of 15, has never recurred regularly,—prior to and since marriage the duration of the inter-menstrual period has sometimes been six and seven weeks. There has been no dysmenorrhœa, and the menstrual discharge, which has usually lasted seven days, has never varied in amount.

For seven or eight weeks patient has complained of pain in the back and lower abdomen. For many years she has noted more or less constantly a feeling of sickness.

Physical Signs.—The hypogastrium is prominent, especially on the right side. Palpation detects a cystic swelling which extends upwards from the pubes 5½ inches, and measures transversely 3 inches to the right and 1 inch to the left of the linea alba.

Vaginal Examination.—The cervix uteri is located centrally. The right fornix of the vagina is pushed down by a swelling which is continuous with the abdominal tumour.

Operation.—The abdominal cavity was opened. The tumour proved to be a cyst in the right broad ligament, which was independent of the ovary. The pelvis was occupied by a network of bands, which appeared to be of a congenital rather than an inflammatory nature. The cyst was tapped *in situ*, and 20 ounces of a pale yellow-coloured fluid were removed. The fluid teemed with cholestearine and fat. The interior of the cyst was smooth, but presented a mottled appearance. The cyst wall could not be satisfactorily enucleated; it was therefore stitched to the abdominal wall and drained. The patient recovered without an untoward symptom.

Pelvic cysts containing cholestearine are very rarely observed. In each of the cases I have just recorded the tumour had no doubt been in existence for years before the patient came under my notice. It is, in fact, highly probable that in both cases the cysts were congenital tumours which had taken on an active growth at or about the time of the establishment of menstruation. The attack of peritonitis which the patient Winifred M. suffered from at the age of 24 was no doubt due to the presence of the tumour even then, and the more or less constant feeling of sickness which Emma H. had for years complained of was caused by the remarkable network detected in the pelvis, at the time of the operation, keeping up a disturbance of the pelvic nerves. Cholesteatomas originating in the pelvis have evidently no very decided malignant tendency. In the two cases which I have just recorded, the cholestearine was probably a primary constituent of the tumours, and was not the result of any degenerative process.

VIII.—CASE OF FATAL INFANTILE JAUNDICE FROM CONGENITAL NARROWING OF THE COMMON BILE-DUCT.

By J. A. C. Kynoch, M.B., M.R.C.P. (Ed.), Dundee.

(*Read before the Edinburgh Obstetrical Society, January* 8, 1896.)

In a recent volume of the Society's *Transactions* there appears an elaborate paper on Congenital Obliteration of the Bile-ducts, by Dr John Thomson.

In this paper he has collected all the published cases, dividing them into two groups, the first including the larger number, where the passage of bile into the duodenum was impossible owing to obliteration of some part of the bile-ducts; the second group including a smaller number of cases where the bile-ducts, although permeable, were not sufficiently so as to permit of the passage of bile during life.

The following are the notes of a case coming under this latter group, of interest from the condition of the common bile-duct causing obstruction to the passage of the bile.

Matilda Chisholm, aged 3 months and 4 days, was brought to the out-patient department of the Dundee Royal Infirmary when 2½ months old, on account of persistent yellowness of the skin, which the mother stated had been noticed since birth. At first the yellowness was most marked on the chest and abdomen, but five weeks after birth the conjunctivæ were noticed to be also affected.

The father, a millworker, has always enjoyed good health, and denies having had any form of venereal disease.

The mother, who has had two children, appears to be healthy, has had no miscarriages, and except for a sore throat during her first pregnancy at the fourth month, her health has always been good.

The other child, a boy 14 months old, is perfectly healthy, has had no symptoms suggestive of congenital syphilis; had jaundice for two or three days after birth.

During her second pregnancy the mother enjoyed good health; the child was born at full time, and her labour was uncomplicated.

At birth the child was considered small, and from the *first* day the skin was noted to be very yellow. There was never any hæmorrhage from the umbilicus nor from the bowels, mouth, or nose. It was bottle-fed, and had occasional attacks of vomiting. There never were symptoms suggestive of congenital syphilis.

When seen for the first time it was noted to be very emaciated, and the skin had a yellow-green colour, the conjunctivæ being likewise affected.

There was considerable distension of the abdomen, especially marked over the right side. On palpation the liver was felt to be enlarged, its lower edge sharp, and on percussion in the mammillary line the dulness extended from the fifth rib to midway between the costal margin and umbilicus. The spleen was not felt below the costal margins some days later when the attempt was made for the first time. Examination of thorax was negative. Grey powders, $\frac{1}{2}$ gr. twice daily, were prescribed (so as to keep it attending the Infirmary). It was seen twice a week during the three weeks it attended the Infirmary. There was never any improvement noted; the skin always appeared to become greener in appearance, although the mother stated that the intenseness of the jaundice varied. The emaciation was progressive, and during the last week of attendance there was noted marked redness and swelling of both eyelids, especially the left, with greenish-yellow discharge and a filmy appearance of both corneas, which became slightly opaque two days later.

The stools from the day of birth were white and milky, and on several occasions I was able to satisfy myself of this putty-like colour. The urine was dark, and stained the linen yellow. On examination it contained bile pigment; no albumen. Microscopic examination not made.

A post-mortem was made, and the abdominal organs removed. The thorax was not examined. The skin was noted to be of a greenish tinge; body very emaciated. On opening the abdomen the peritoneum appeared perfectly normal; there were no adhesions and no ascites.

Liver enlarged, 237 grammes (= 8 oz.) Length of upper surface, 6½ in.; length of lower surface, 5¾ in. Antero-posterior—Right lobe, 4¼ in.; left lobe, 3¼ in. Its edges are sharp, colour olive green, consistence tough; fibrous bands of a yellow colour are seen on surface, which is somewhat irregular. Gall-bladder flaccid, and contains thin bile; capsule not thickened, and on squeezing a cut surface brownish fluid exudes. Both hepatic ducts appear normal, likewise the cystic duct. The common duct immediately below the junction of the cystic and hepatic ducts appears to be of normal calibre, but from this point it gradually becomes narrower, having a thread-like appearance in the lower part of its course. It ends in a well-marked papilla on which no orifice could at first be seen with the aid of a lens, but on pressing the gall-bladder bile passes easily into the upper part of the duct, the passage from this point downwards into the duodenum being slower.

Spleen measures 2¾ in. longest diameter; 1¾ in. transverse diameter; weight, ¾ oz. Kidneys appear normal, 14 grammes. Intestines normal, and contain cream-coloured mucus; no blood corpuscles. Microscopically.—Several sections examined appear perfectly normal, in others there is slight biliary cirrhosis.

With regard to the health of the parents, syphilis can, I think, be excluded. The sore throat referred to appeared, on questioning the mother, to have been of the nature of an ordinary catarrh, and there were no other symptoms pointing to syphilis.

The other child appeared healthy, and the jaundice it is reported to have had was most probably the ordinary form of jaundice neonatorum.

The duration of life (3½ months) is longer in this than in the other published cases, which may be accounted for by the complete absence of hæmorrhages.

The case further shows, as Dr Thomson has pointed out, the close resemblance between those cases with pervious ducts and those where the obliteration is complete.

IX.—CLASSIFICATION IN PATHOLOGY.

By Charles W. Cathcart, F.R.C.S.

(*Delivered before the Royal College of Surgeons of Edinburgh, 26th June* 1896.)

Mr President and Gentlemen,—To be asked to give a special lecture before this College is an honour which I appreciate very much, and particularly so when this lecture is intended to inaugurate a return to the custom, which has lapsed for many years, of having such lectures from time to time. You will therefore, I hope, allow me, before going further, to tender my sincere thanks to the President and Council for the compliment which they have paid me in inviting me to address you to-day.

There are many reasons why I should select for this lecture a subject arising out of my work as Conservator of our College Museum. Naturally I have had my thoughts much directed to the Museum specimens and all that concerns them during the last seven or eight years. We are all justly proud of our large and rapidly increasing collection; and while I am deeply grateful for the confidence towards me which you have shown in allowing me to re-arrange the treasures which it contains, I am glad of an opportunity of explaining the principles which are guiding me in this work, and of pointing out what seems to me their value in departments beyond the limits of our Museum.

It is perhaps needless to say that before one can form an efficient catalogue of any collection of objects, some system of classification must be framed. Accordingly, when I first began to this work I consulted all the catalogues of pathological museums that I could lay hands on. From these I drafted a rough working plan which embraced what seemed the best points of each, and started on the first series—that of General Pathology. While engaged in collecting and arranging specimens to illustrate this subject, I chanced one day to fall into an argument, and as I trace a great deal to that argument, I make no excuse for mentioning it. My friend Mr Alexis Thomson was at that time re-cataloguing the bone preparations in the University Museum. We were comparing notes as to the mode of subdividing bone diseases, and he objected to the system shown in my draft plan. I acknowledged his criticism, but found objections also to his plan, and the argument thus begun was continued for several days. This took the form of repeatedly altered schemes which he sent to me, and which I, now turned critic, sent back with emendations. At last, when we had reached a seventh edition without apparently getting any nearer a satisfactory conclusion, I resolved to consider the matter in its widest bearings, in the hope of thus getting at the bottom of our differences of opinion. Immediately on so doing I saw with interest and surprise that his objections to my draft scheme, and my subsequent objections to all of his, were alike based on a logical foundation,—a foundation which for me at least had been laid years before in the class of Logic, but apparently forgotten. What in fact was brought prominently forward by this discussion was the value of those canons of classification which philosophers have long since laid down for us, and it has been in the effort to work according to them that I have come to look on classification in Pathology in a new light. The rules for logical classification or division are very simple, and may be found in any text-book on logic. Thus I am fortunate in not having to appeal to any abstruse discussion or rare book for the foundation of what I wish to bring forward.

One of the standard text-books on logic is Jevons' *Elementary Lessons in Logic*, and we could not wish to find the subject more clearly explained than we find it there. As the application of this corner of knowledge has been strangely neglected in many departments of our professional study, I cannot do better than make a few quotations for the benefit of those who may not recently have had the book in their hands.

Thus in Lesson xii., referring to logical division, he says: "In order that a quality or circumstance may be taken as the basis of subdivision, it must be present with some and absent with others, or must vary with the different species comprehended in the genus. . . . Three rules may be laid down to which a sound and useful division must conform.

"1. The constituent species must exclude each other.

"2. The constituent species must be equal when added together to the genus.

"3. The division must be founded on one principle or basis.

"It would be obviously absurd to divide books into folio, quarto, French, German, and dictionaries, because these species overlap each other, and there may be French or German dictionaries which happen to be quarto or folio and belong to three different species at once. A division of this kind is said to be a *cross division*, because there is more than one principle of division, and the several species in consequence cross each other and produce confusion. If I were to divide rectilineal figures into triangles, parallelograms, rectangles, and polygons of more than four sides, I should connect all the possible faults in one division. The species parallelogram and rectangle do not exclude each other, since all rectangles must be parallelograms; the constituent species are not altogether equal to the genus rectilineal figure, since irregular four-sided figures which are not parallelograms have been omitted, and there are three principles of division, namely, the number of sides, the direction of these sides, and the angles contained. But when subdivision is employed, and each of the spaces is considered as a genus which may be subjected to a further separation, a new principle of division may and in fact must be employed each time" (p. 105).

If we are to avoid the confusion brought about by a cross division, it is therefore evident that we must not transgress these primary rules. But as it is possible to select different bases of classification, the groups formed in accordance with each of them will be different, and we may look again for guidance in the selection of the basis or bases which will serve our purpose best. Jevons enters into this in his Lesson or Chapter xxxii., "On Classification and Abstraction." After some introductory remarks he quotes from Mill the following passage, which I take the liberty of copying as an embodiment of what we ought to aim at in our museum classifications:—

"Classification is a contrivance for the best possible ordering of the ideas of objects in our minds; for causing the ideas to accompany or succeed each other in such a way as shall give us the greatest command over our knowledge already acquired, and lead most directly to the acquisition of more. The general problem of classification in reference to the purposes may be stated as follows:—To provide that things shall be thought of in such groups, and those groups in such an order as will best conduce to the remembrance and to the ascertainment of their laws" (*loc. cit.*, p. 278).

After some illustration of the ways in which objects may be classified according to the purpose in view, Jevons warns us that logic can only furnish us with certain general requirements and principles, and proceeds to show what these are.

"The first requisite of a good classification is, that it shall be *appropriate to the purpose in hand.*" . . . "All those things must be arranged together which require to be treated alike, and those things must be separated which require to be treated separately."

"Another and, in a scientific point of view, the most important requisite of a good classification, is that *it shall enable the greatest number of general assertions to be made.*" . . . "A good classification is more than a mere orderly arrangement; it involves a process of induction which will bring to light all the more general relations which exist between the things classified" (*loc. cit.*, pp. 279, 280).

These requisites are explained at some length, but what I have quoted will be sufficient for our present purpose. Before passing, however, to show how I propose to apply these general principles I must delay for a few minutes to anticipate a difficulty. Supposing that we were to find an ideal basis of classification for certain explored and fairly well understood departments of our subject, are we to refrain from applying it because from want of knowledge it is not applicable to the unexplored regions? The answer from our logical friends is—"By no means. You can then apply a stage of the process of dichotomy or the cutting-in-two method, also known as exhaustive division." Thus, instead of dividing rectilineal figures as before into three-sided, four-sided, five and more-sided figures, we might begin with five-sided and not five-sided, and then separate "the not five-sided" into four-sided and not four-sided, and so on. Of course this would be a cumbrous and unnecessary process except in the less certain branches of knowledge, but in them it would be really useful,—and even if the method were not brought prominently forward, the fact of its having been applied during the progress of the classification would greatly help to obtain a good result. Thus in the anticipated difficulty to which I have alluded we might begin by separating our objects into two main groups,—those to which a given basis of classification was clearly applicable, and those to which it was not applicable, or only obscurely so. Each might then be handled independently,

—the first with the chosen basis of classification, and the second with some other, or it might again be subdivided into two in the same way as at first.

It will not be necessary for me to prolong this appeal to logical principles, although I make no apology for having introduced them, unless for not having done it better. For it is surely as important to apply to our work, where we can, the results obtained by inquirers into mental processes, as to use the instruments and methods furnished by students of physics and chemistry.

Had these general principles not been hitherto disregarded by the majority of workers in Pathology, we might have taken them for granted, but as they have been so much ignored, it is necessary to draw special attention to them. Since, however, they are only to be looked upon as a general foundation equally serviceable for classification in any department of knowledge, we have now to consider what superstructure can be raised upon them which will be of special service in Pathology.

If we examine the classifications of disease set forth in any work—ancient or modern—on medicine, surgery, pathology, or any of their branches, we find that there are only three bases of classification employed,—viz., locality, result, and cause,—and as far as I can see there are no others available. It is true that these bases of classification seem generally to have been employed unconsciously, and hence as often as not indiscriminately and simultaneously, thus resulting in a cross division; but nevertheless they underlie the names of the diseases or groups of diseases which are represented in the various classifications. "Locality" is, of course, a necessary basis to use in order that we may distinguish the organ or system, or the exact part of it, which is affected. Of the other two, "result" is the basis which has been hitherto most employed, and for a very good reason. The results or effects of disease are, and always have been, more or less obvious to ordinary observation, but the causes of disease remained obscure long after the results had been accurately recorded. In recent years, however, our field of vision among causes of disease has been greatly extended, and is still on the increase; and it will be worth while, as pertinent to our present inquiry, to consider the two chief ways in which this has been brought about. In the first place, careful observers have been able to point to certain groups of effects which have been so distinct and uniform as to justify the conclusion that each group has been the result of some definite cause, and to such group of effects or its supposed cause a distinctive name has been attached. In the second place, as the application of scientific methods of research and improved instruments have increased our knowledge of Pathology, many of these previously hypothetical causes have come at length to be clearly recognised, and the clinical observer with this light in his hand has then reviewed, and often been enabled to modify, his previous conclusions from observation. The first method has stimulated inquiry and often forecast results, which the second method has enabled other workers to correct, confirm, or extend. Thus Koch, believing in a parasitic origin of tubercular foci, looked for a micro-organism with all the help that immersion lenses and coal-tar stains could give him, till he found the tubercle bacillus. Having found it, he was able to prove other diseases to be tubercular which had not been considered so before, and to eliminate some previously placed in that category. Now, as soon as a disease has been isolated by either method, but especially by the second, because the more exact, pathologists have acknowledged its individuality, and given it a place on their lists. They have, however, almost invariably done so without re-arranging the other classes framed on the basis of effect, and thus a cross division with its inevitable confusion is seldom absent from our existing classifications of disease. Even at a time when only one or two causes were known, this might have been avoided by the use of the process of dichotomy, as already indicated. But our knowledge of cause, although still very incomplete, has now advanced so far that I think it may and ought to be systematically used before "effect," not only in our museums, but in our treatises on disease, whether written from a clinical or from a pathological standpoint. This, I know, is a bold statement, and it will be my endeavour now to justify it.

There can be very little doubt that "cause" is a more desirable primary basis on which to work than is "effect," and for several reasons. It furnishes groups whose members resemble one another in far more and more important particulars, including the general indications for treatment, than do those of the groups framed on the basis of result. Thus the knowledge conveyed along with the classification by "cause" is more valuable than that obtained by using "effect" as a basis. Again, the same causative standard can be applied to the diseases of every organ or system, and thus the diseases found in one organ may be compared with those found in another. When, however, "result" is taken as a basis, this is practically impossible; the effects of disease depend so much on the nature and functions of the part affected, that a different kind of effect is found in each organ, and requires a classification of its own.

These advantages will, I hope, be brought out in the course of my subsequent explanation. They are referred to at this stage in order that you may perhaps more patiently listen to my suggested plan of using "cause" as a basis of classification in spite of the fact that our knowledge of it is at present comparatively limited. Whether we consider pathology as a whole, or inflammation as a part of it in particular, we should remember that it is intimately associated with physiology. This is brought out by Dr Taylor when he says, in a footnote to the opening sentence of Hilton Fagge's *Medicine,* that "pathology is only physiology under various disturbing causes"; and by Professor Burdon Sanderson,

TABLE I

	Physiological Basis of Health for Organs or Tissues.	Disturbances of that Physiological Basis which lead to Disease.
Primary Conditions.	Original structure Original endowment of vital energy and the power of maintaining these	Congenital malformations. Functional defects. New growths. Senile changes.
Secondary Conditions		General weakness from any cause.
	Functional activity	Excessive functional activity. Diminished „ „
	Influence of nervous system	Alterations in nervous system.
	Supply of nourishment	Disturbances in circulation of blood (i.e., mechanical). Alterations in blood glands. Recognised disturbances in blood maintenance (i.e., in diet, digestion and assimilation, excretion, or respiration). Obscure disturbances in nutrition. Alterations in the blood— *a*. Chemical, drugs, poisons. *b*. Organismal.
	Physical environment	Abnormal environment - Organismal. Chemical. Thermal, Electrical, Radiant. Mechanical.

(For Classification of Disease, see Tables in the August number of this Journal.

when he describes inflammation as "the succession of changes which occur in a living tissue when it is injured, provided that the injury is not of such a degree as to at once destroy its structure and vitality."

We cannot do better, therefore, than begin by reviewing in very general terms the essential requisites for the healthy life of the organs of our body. Sir James Paget has discussed this subject at length in his opening lecture on "Surgical Pathology," and it was from the study of this most interesting lecture that my first ideas on the subject were derived. He maps out the subject before discussing it, and although I have no intention of referring to the details which he so fully explains, it seems right for me to quote his general outline before indicating that modification of it which seems to be necessary for my present purpose.

"Doubtless," he says, "the conditions necessary to the normal nutrition are very many, but the chief of them are these four:—

"1. A right state and composition of the blood or other nutritive material.

"2. A regular and not far distant supply of such blood.

"3. (At least in most cases) a certain influence of the nervous system.

"4. A natural state of the part to be maintained."

Starting with these conditions for normal nutrition, I tried to frame a classification of disease based upon modifications of them. This was easy up to a point, but finding no way of accounting for diseases brought on by local irritation, I have re-arranged and modified it, after much consideration, as follows (see Table I.):—

First of all, it seems advisable to distinguish the essential endowments of the organs or tissues as to structure and vital activity from those conditions which are necessary for the maintenance of the same. These we may call respectively primary and secondary conditions of health, and the diseases traceable to deviation from them may be distinguished as primary and secondary also. In subdividing these physiological conditions I have placed in the first class, along with the "original structure and endowment of vital energy," "the power of maintaining these." This, as is well known, has a normal duration, but the power may be imperfect or its duration may be shortened either in the tissues as a whole or in any part of them.

The secondary conditions seem to me to be resolvable into four main factors:—1, A due proportion of functional activity; 2, a certain influence of the nervous system; 3, an adequate supply of nourishment in quantity and quality; and, 4, certain conditions of what I have called, for want of a better term, "physical environment."

Tracing out now in general terms those disturbances of this physiological basis which lead to disease in its widest sense, we can point to congenital malformations as due to a fault in original structure, and to functional defects as due to an imperfection in vital endowment. Some, we know, hold that functional defects must be due to some imperfection in structure. Whether this is really so or not no one can tell in the present state of our knowledge. At least some modifications of function can be recognised, which are not accompanied by deviations from structure detectable by any means yet within our reach, and this is all I want. For my own part the difficulty of accepting modifications of function seems no greater than that of accepting vital energy itself. There are few now who deny that it is an entity, no less distinct, and neither more nor less mysterious, than those other unknown entities which stand behind other phenomena of Nature, and to which we give such distinctive names as "gravitation" or "chemical affinity." Only last week Lord Kelvin said at his jubilee celebration, "I know no more of electric and magnetic force, or of the relations between ether, electricity, and ponderable matter, or of chemical affinity, than I knew and tried to teach my students of natural philosophy fifty years ago in my first session as Professor." Besides senile changes which seem naturally to follow from failure of the tissue's power of maintaining its structure and function, I have also placed new growths in this class of primary diseases. This I have done in spite not only of the belief of many that cancers, and probably also sarcomata, *seem* to be due to the action of some micro-parasite, but also of the confident assertion of some investigators that they have found the parasite in question. The analogy, when fully considered, is to my mind far stronger against than for a parasitic origin of tumours simple and malignant; and I agree with those who look for their explanation in some modification of those mysterious laws of growth which normally guide the multiplying cells of the embryo towards their several goals, and do not relax control until the adult stage is complete. Whether this modification be to all appearance spontaneous, or be called into play by some evident irritation, the result seems the same. When once started the process is essentially a fault in the mode of growth, and the result is hence deservedly called a "new growth," and classed among primary diseases. This, of course, is only a pious opinion. If it were to be proved incorrect, the general plan of classification would not be thereby affected. The position of new growths would then have only to be shifted down to the class of diseases caused by local organismal action.

Among the disturbances which lead to secondary diseases I have placed first "general weakness from any cause." This has no exact counterpart on the physiological side, but may be considered to follow from serious derangements from any cause. Transgressions of the limits of functional activity, both in the way of excess and diminution, lead to derangements which do not require any special explanation. The same remark applies to affections due to alterations of the nervous system, which form a well-recognised group among the diseases of many organs.

Under the head "Supply of Nourishment" I have recognised several factors. The first, "disturbances in circulation of the blood—mechanical," is meant to cover variations from any cause in the quantity of blood supplied to any part, as well as actual obstruction to the flow, and also hæmorrhage. The next factors point to different ways in which the quality of the blood may be affected. Thus, it may be through derangements of the blood glands, through faulty diet, digestion and assimilation, excretion, or respiration. Besides those, there are disturbances in nutrition, about which we can only say that they seem to be of this nature, and which I have therefore qualified as obscure. This group is absolutely necessary in the present state of our knowledge, and it may be looked on as the result of an application of the process of dichotomy, as if we had made two groups to begin with,—*i.e.*, those of which the cause was probable and could be indicated, and those of which the cause was obscure. The former would include the other groups due to causes specially named, and the latter would be the receptacle for those diseases whose causes are still beyond our reach. As I shall show in explaining some of the applications of this scheme of classification, the diseases of various organs which fall together into this group are often so similar, that one is tempted to believe that those obscure causes may be neither very numerous nor very different from one another after all.

Lastly, there are two forms of alteration of the blood which are sufficiently distinct from those already considered to be taken separately, although they have some points in common with one another. I mean alterations of the blood due to the introduction of chemical substances other than those developed by deviations from natural processes of blood maintenance. In the one case, the chemical substance enters the body as such; in the other, it is developed within the body by the agency of micro-organisms. It does not seem necessary to distinguish between the blood poisons thus formed actually in the blood stream from those produced in the tissues and absorbed into the blood. At some future time this may be possible, but not yet. It is well, however, to distinguish between the local effect of an organism on certain tissues and the general effects of that organism when it grows in the blood. We are beginning to learn, moreover, that the activity of micro-organisms may be greatly modified during their growth and development in the blood stream, by the influence of those protective antitoxines which are being studied just now with so much advantage. Hence although a given organism may be landed at any tissue through the blood, as well as reach it directly from the outside, and even sometimes produce similar local effects in either case, it still seems advisable to keep a separate place for the results of each mode of attack.

This leads me to consider the disturbances of the last of the physiological bases on my list,—*i.e.*, those of the physical environments. This condition seems to have been more considered with reference to micro-organisms than to more highly organised beings, but its importance to the life and health of either is of course the same. The modifications in the chemical surroundings, the temperature, the mechanical pressure, etc., which different tissues in the same individual can bear with impunity, vary of course very greatly, but a limit for each does exist, and local irritation may be said to begin as soon as that limit has been exceeded.

The organismal class has been placed first so as to make it follow immediately on the class of sometimes allied disorders due to organismal growth in the blood. The evil effects of most locally acting organisms are probably due to chemical substances, but in some cases the injury seems mainly due to their mechanical presence and movements, and the term organismal will cover both.

Those that follow,—*i.e.*, chemical, thermal, electrical, radiant, and mechanical,—I think hardly require any further explanation.

Before attempting to forestall some objections which seem likely to be raised to this system of classification, it will be useful for me to show how it works out when applied to the diseases of certain organs where a classification is required.

(*To be continued.*)

Part Second.

REVIEWS.

The Histopathology of the Diseases of the Skin. By Dr P. G. UNNA. Translated from the German, with the assistance of the Author, by NORMAN WALKER, M.D., F.R.C.P. Ed., Assistant Physician in Dermatology to the Royal Infirmary, Edinburgh. With double Coloured Plate, containing 19 Illustrations, and 42 additional Illustrations in the Text. Edinburgh: William F. Clay: 1896.

IN the voluminous work before us we have the first serious attempt to construct a pathology of the skin on a microscopic basis. The alphabetically arranged Atlas of the microscopic anatomy of cutaneous diseases, by Leloir and Vidal, interrupted by the death of the second, was rather a series of plates, with accompanying text, than a systematic treatise. It is true, also, that many have recorded their observations on special diseases, but these have been scattered throughout the literature, and have either failed to explain the clinical appearances, or have been frequently irreconcilable with the statements made by other investigators. This volume, which forms a part of Orth's *System of Pathology*, will serve as a milestone on the path of progress. Whatever may be the eventual fate of the novel views which Unna has herein propounded, they cannot fail to arrest attention, to elicit criticism, and to advance science. The first thing which strikes one in commencing its perusal is the classification adopted. While prepared for considerable modification of existing opinions, the manner in which some ailments are thrown together, while portions of what we have been accustomed to regard as the component parts of others are relegated to different categories, is, at the outset, surprising. Thus, though von Hebra placed scabies next to eczema, it has for a long time occupied a position among the disorders due to animal parasites; yet here it appears once more as the type of the vesicular catarrh of the skin, as an inflammation, beside pemphigus. Ichthyosis, again, comes immediately after lichen, as one of the infectious inflammations. Under the neurotic inflammations we find neuroleprides and neurosyphilides in juxtaposition to dermatitis herpetiformis and zoster; while leprosy and syphilis in general belong to the group of infectious inflammations. The determination of the invasion of the nerve trunks in leprosy by the characteristic bacillus has led to the recognition of various cutaneous manifestations which are due to disturbances of vascularity or nutrition as a consequence of this. These are very properly termed neuroleprides, in contradistinction to the tissue lesions or lepromata, directly occasioned by the presence of the bacilli in the skin. On the basis of analogy, though so far the evidence of a bacillus of syphilis is merely presumptive, Unna localises alongside these erythematous, erythemato pigmented, and primary pigmented neurosyphilides. This is certainly ingenious and interesting, but it leads to a rupture of continuity in description. We do not quite see either how lupus erythematosus, or ulerythema centrifugum, though from its microscopic anatomy very properly divorced from lupus vulgaris, should be found among the atrophies with scleroderma and alopecia areata. Inflammation of a kind may undoubtedly predispose to the one, and hypertrophy may precede the other, but neither are conspicuous, if existent, in the latter. At the same time, Unna can give a reason for the arrangement he has chosen, and has spared neither time nor trouble to arrive at conclusions. Throughout, one meets with various unfamiliar terms, which sound strange to those who may not have followed out their evolution in Unna's periodical. The key to some of these may be found in the selections from his writings published in a recent volume of the New Sydenham Society. It is perhaps to be regretted that a concise statement of an explanatory nature had not been furnished in an introductory chapter. Had this been done it would have made the book more widely intelligible. Thus, through all the class of inflammatory diseases there runs the thread of chemotaxis, which in its simplest form means an attractive influence exerted by micro-organisms on the elements of the tissues. This may be exercised on leucocytes so as to induce their emigration. But Unna has extended this conception, and speaks of a serotaxis, a fibrinotaxis, and a sebotaxis, thus conferring an elective affinity on the germs which are present. The theory is a fascinating one, but it wants experimental confirmation. This adductive influence is still further extended when, under xeroderma pigmentosum, he calls in the chemotactic effects of light on the melanin pigment granules, causing them to approach the surface, and so to act as a protective veil to the congenitally over-sensitive skin. An impediment to progress in microscopic study has been that the staining agents employed have been to a large extent nuclear ones, while the cell protoplasm remained in obscurity. Unna set himself to discover protoplasmic stains, and their application in his hands has revealed features hitherto unsuspected, and has led to new explanations of pathological phenomena. Thus, in place of the indefinite "round" or embryonic cells which figured so constantly in histological descriptions, we find him differentiating quite a number of cellular bodies, the exact import of which, nay, even the derivation, cannot be regarded as at all precisely settled. In various chronic inflammatory disorders, but also in a whole series of other diseases, he has encountered Waldeyer's plasma cells. These he looks on as originating from the fixed cells of the connective tissue, or, as in lupus, from the perithelium of the bloodvessels. These in carcinomata form the main part of all the cellular infiltration. The changes which occur in these have been carefully studied, but the frequency with which they are met, and in such different circumstances, rather weakens their special significance. Other cells, the value of which it seems even more difficult to estimate, are Ehrlich's "mast cells," attention to which, if we remember rightly, was first drawn by Unna in investigating urticaria pigmentosa, a morbid condition to which they bear a specific relation.

But it is time to turn to a consideration of the mode in which he regards individual diseases. One of those most closely connected with Unna's name is eczema, for his views have very greatly revolutionized our ideas with respect to its nature and causation. Though its catarrhal origin was accepted long since, it was a startling advance on this when Unna enunciated the view that it is in all cases a parasitic catarrh, a special organism—his morococci—being responsible for its production. At one time, in the early days of dermatology, the vesicle was regarded as the type lesion in eczema; but this erroneous idea was successfully exploded by von Hebra. According to Unna, an anomaly of cornification, known as parakeratosis, is *the* characteristic, from a clinical as well as from a pathological side. This he defines shortly as an œdema of the transitional epithelium, or more fully, as an abnormally simple cornification,—that is, in the absence of the many intermediate stages (separation of keratohyalin, breaking up of the nucleus, drying up of the internal protoplasm), which accompany normal cornification. This gives origin to the scale, consisting of hardened, improperly cornified horny layer. Persistence of the serous saturation of the epidermis leads to the second histological change, viz., acanthosis. Every long-standing eczema leads to epithelial growth. This is manifest clinically in the papular elevations of the eczematous parts. Microscopically this is evidenced by the increased amount of mitosis. Another histological feature of eczema is spongy transformation of the epithelium and vesicle formation. The commencement of this pathological change, which distinguishes all the moist forms of eczema, is seen in a general dilatation of the lymph spaces of the prickle layer, thus—in contrast to simple parakeratosis—in an interstitial œdema of the epidermis. On this basis vesicles may develop, apparently in two ways. One, and the more common, is nothing but a local excess of the spongy transformation of the prickle layer. The other is not merely an increased collection of serum, which dilates the uppermost spaces into vesicles, but is a local saturation with leucocytes. "It gives the impression as if all the leucocytes in the neighbourhood had run together at a sudden alarm, and, stopped at the horny layer, had made themselves a place, and thus, as in true impetigo, formed the sub-corneal vesicle." Besides these positive alterations, there are some affecting the connective tissue. This does not disappear, hence the firmness of the infiltrated parts. There is hardly any emigration of leucocytes, but the infiltration consists mostly of small multiform connective tissue-cells, poor in protoplasm, but closely set, and with a fairly well-stained nucleus. Having laid down the characters peculiar to eczema in general, Unna proceeds to analyze certain forms, as eczema rubrum, keratodes, and rimosum, as also the pruriginous and the psoriatiform. A large part of the section devoted to eczema is occupied by an account of the seborrhœic type. Much, if not all, which used to be described as seborrhœa is swallowed up by eczema, for he says that a great part of the seborrhœa described by the Vienna school as simply hypersecretions, especially the so-called seborrhœa sicca, are really eczema. Eczema is often distinguished by a richness of fat in its products, and a yellowish colour of the rest of the skin, also to be ascribed to fat. Curiously enough, the source of this fat is not, according to Unna, and notwithstanding the name attached, the sebaceous, but the coil or sweat-glands. This flow of fat is, according to him, a chemotactic phenomenon, though he is uncertain if the morococci are solely responsible for it. In the category of seborrhœic eczemas he includes rosacea, pityriasis capitis, and the moist eczema of the head in infants. He is inclined to think that the pityriasis rosea of Gibert is an allied disease, though he, like others, has so far failed to discover any organism. As to the psorosperms alleged to have been present in Darier's disease, in molluscum contagiosum epitheliale, and in Paget's disease, Unna, as the result of carefully conducted investigations, unhesitatingly decides that they are nothing more than hyaline degeneration of epithelium.

An interesting section is that devoted to acne. This he views, in a restricted sense, as an affection of the skin, limited to the cheeks, nose, forehead, chin, and shoulders, and to the period of puberty. One must avoid describing as acne purulent folliculitides of other origin. It is characterized in the first stage by a superficial hyperkeratosis of the epidermis, which, extending to the follicle mouths, leads to the formation of comedones. Now in the comedo Unna finds at least three organisms. In the head and mantle of the comedo are the keratophilic, oat-shaped bottle or flask bacilli, and the diplococci of seborrhœic eczema. But inside and in the lowest part of the comedo, he has invariably met with a special form of bacillus. These are irregularly arranged, like bundles of spelicans, some projecting on all sides. The secondary and non-essential suppuration in acne is, according to him, not induced by accidental contamination with pyococci, but by this special bacillus. There is formed a bacillogenic impetigo, and secondary to it a slight peri-comedonal suppuration, which extends more or less deeply. Sycosis, again, is a totally distinct process, and essentially depends on the penetration of pyococci. Cogent histological reasons are furnished why epilation can have no therapeutic value, a conclusion which from clinical observation we had long arrived at. It is, in fact, the frequent occurrence of valuable practical suggestions intercalated among elaborate pathological details, which prompts the reader to persevere in wading through the volume. The general impression which its study conveys is that the epidermis —and by this must be understood not merely the horny layer, but the entire structure down to the dermis—plays the most important part in the initiation of the majority of cutaneous diseases, the rôle of the corium being subsidiary, though considerable. This goes to support the chemotactic theory, and is of hopeful augury for the treatment of the future. We can anticipate beneficial effects if we have primarily to deal with epidermic deviations from the normal. Were the earliest lesions chiefly located in the corium, they could hardly be reached except in a roundabout manner through the bloodvessels, and we know how ineffective are constitutional remedies alone in comparison with local ones, in most dermatoses.

Though in this edition illustrations not to be found in the German original have been introduced, and are in themselves admirable, yet their number might with advantage have been multiplied manyfold. It is often difficult, if not impossible, by simply following the description of minute and complex changes, to call up the actual picture, which Unna in a wealth of word painting strives to delineate. The work is one which, to realize its real importance or to understand at all, must be read, with the attention closely fixed from end to end, more than once, and a debt of gratitude is owed by the medical world at large to the translator for having made it accessible to English readers. Every pains has been taken to make the rendering an accurate one, and if at times the idiom savours somewhat of the

Teutonic, this, when one compares the version with the tortuous, often involved, original phraseology, seems unavoidable. We commend this unique treatise to all thoughtful members of our profession as well worth their study.

A Handbook of Leprosy. By S. P. IMPEY, M.D., M.C., late Chief and Medical Superintendent, Robben Island Leper and Lunatic Asylum, Cape Colony, South Africa. London: J. & A. Churchill: 1896.

THE interest evoked by the discovery that to a certain extent leprosy shows signs of recrudescence is proved by the number of books and reports dealing with the disease which have appeared within recent years, many of which have been reviewed in these pages. Dr Impey has had the opportunity of studying it in one of the largest leper settlements in the world, and, struck with the fact that many patients were sent to Robben Island as lepers who were not suffering from the disease, he has been led to publish a very fully illustrated handbook as a guide to its better recognition. These reproductions in black and white from photographs constitute, indeed, the chief feature of the volume, and are in most cases on sufficiently large a scale to bring out the points they are meant to emphasize. Since, however, leprosy exhibits the same characters wherever it is found, the natural duskiness or fairness of the race but slightly modifying its visible symptoms, and as no new discovery as to its nature has been made by the author, we find in the text not much more than a variation in verbiage. The clinical description is drawn from actual observation, thus is an accurate one. But Dr Impey allows himself to fall into speculative statements as to the behaviour of the bacillus in the body, and is not always in agreement with other reliable investigators as to its situation in the tissues. He speaks, too, of a syphilitic leprosy, meaning the co-existence in an active condition of syphilis and leprosy. No doubt this intensifies both, but the double name is misleading and superfluous. In treatment he lays great stress on the effects of an attack of erysipelas, not only in reducing the size of the tubercles, but also in diminishing their number. "I believe," he says, "one attack of facial erysipelas would destroy all the bacilli in the tubercles on that part of a person who has not had the disease for more than three years; a second attack would destroy the bacilli in the extremities, if there were any located there; and thus, I think, by artificially producing two attacks of erysipelas in a recent case of tubercular leprosy, the disease could be cured." There are various diseases on which erysipelas has a temporary influence for good, but we wish Dr Impey had had the courage of his opinions, and since "many patients have expressed their willingness to undergo the ordeal," had tested himself a method in which he expresses such faith, and the value or the reverse of which he might surely have proved on the ample material at his disposal. He speaks of danger; this hardly weighs for much in an irremediable ailment such as leprosy.

The Structure of Man: An Index to his Past History. By Dr R. WIDERSHEIM, Professor in the University of Freiburg. Translated by H. and M. BERNARD. The Translation Edited and Annotated, and a Preface written by G. B. HOWES, F.L.S., Professor of Zoology, Royal College of Science, London. London: Macmillan & Co.: 1895.

IT is curious how few medical men have been able to form anything like a wide conception of the process of evolution. Darwin's explanations have, in fact, been too passively accepted by the many, and their acceptation has prevented the consideration of the phenomena of evolution from occupying the attention it would otherwise doubtless have occupied.

In the study of human anatomy this is greatly to be regretted. As a mere collection of facts no study can be more dreary. Viewed as a series of problems in evolution, every part is of entrancing interest. It is in this aspect that Widersheim presents *The Structure of Man.* We are briefly taken over the whole bodily structure, and the evidences of progressive and retrogressive changes are lucidly pointed out. The student who cannot derive pleasure from such a study must be dull and unimaginative indeed. It is needless here to analyze the work in detail. Every part is worthy of careful study.

The work of the translators has been well done, and Professor Howes' annotations are of great value.

Physiological Papers. By H. NEWALL MARTIN, D.Sc., M.A., M.B., F.R.S., Professor of Biology, Johns Hopkins University, 1876 to 1894, and Professor of Physiology. Baltimore: The Johns Hopkins Press: 1895.

PHYSIOLOGICAL science, untrammelled by a too interfering legislature, is making rapid and steady progress in the United States, and many are the important discoveries to be credited to our transatlantic cousins. Among American workers — or rather workers in America—H. Newall Martin stands out as one of the ablest; and it is deeply to be regretted that ill-health should have brought to a close so brilliant a career.

His friends and pupils have now paid him the well-earned tribute of publishing his collected papers in a handsome volume, being the third collection of Memoirs from the Biological Laboratory of the Johns Hopkins University. In this collection they have included not only his contributions to experimental physiology, but also his various scientific addresses. They have acted wisely in doing so, for these addresses are all characteristic of the man and full of interest.

It is impossible, in bringing together such a complete collection, to prevent repetition. The same series of facts may have been communicated to two different societies, or to two different journals in somewhat different language. For instance, in these papers we find the author's method of studying the action of various agents on the heart described not only in the paper which stands first on the list, but in several others; while there are two papers dealing with the same investigations on the influence of arterial and venous pressure and of temperature upon the pulse. But such repetitions are of little moment, and are less irritating to the reader than any attempt at condensation would have been.

Martin was not a man who spent his time in merely devising apparatus; but having evolved his method, he applied it largely and diligently, and thus obtained results of very great value. His chief work is in connexion with the mammalian heart. He first shows that the older teaching in regard to the influence of vascular pressure on the heart-rate is erroneous, and that within wide limits there is no change in the rate of the pulse corresponding to the change in pressure. Temperature, on the other hand, has a direct action on the cardiac tissue. His method also enabled him to study the influence of alcohol on the heart, and to show that incompetent systole is one of the results of the action of this substance.

Among the papers which may be read with interest by the medical reader is one on the Suction Power of the Heart; another on the Action of the Internal Intercostal Muscles in Respiration; and yet another on the Physiological Effects of "Differential" Respiration.

The five Addresses on more general subjects have each an interest to all who understand, or wish to understand, the true relationship of biological investigation to practical medicine. Especially would we commend to the study of the so-called practical man, who inclines to sneer at scientific education, No. 21 of this series—"Some Thoughts about Laboratories." A careful consideration of this may perhaps help to open his blinded eyes, and to break through his miserable empiricism.

The Committee of Publication deserves the heartiest congratulations on the appearance of the volume.

The Physiology of some Animal and Vegetable Colouring Matters. By C. A. MacMunn, M.A., M.D. *The Birmingham Medical Review*, April 1896.

Much pleasure and instruction is to be derived from a perusal of this admirable address by Dr MacMunn. No one is better fitted to discuss and elucidate this complex and important subject. Deservedly he is universally regarded as *the* authority on animal pigments. For a man engaged in active medical practice to have attained such a reputation means a devotion to science and an indomitable energy which all must admire, though few can emulate.

Because the functions of the pigments in plants and animals are largely ignored by our teachers of physiology, we are apt to regard them as of no significance. Dr MacMunn shows how fallacious such a view is, and explains clearly and concisely the meaning of the more widely distributed colouring matters. It is greatly to be regretted that our ignorance of the chemical nature of these pigments is so profound, and that the fallacious method of spectroscopic examination has to be so entirely depended upon in their differentiation. Improved chemical methods of research can alone throw the much-needed light on the nature of lipochromes and their allies. But though their composition is unknown, their action is in many cases clear, and it is upon this that Dr MacMunn chiefly attempts to give information. Whether the medical reader will be able to turn this information to any practical purpose is neither here nor there. That the possession of such information gives a larger and clearer view of the working of Nature should be sufficient reward for the time spent in its acquirement.

A Text-book upon the Pathogenic Bacteria, for Students of Medicine and Physicians. By JOSEPH M'FARLAND, M.D. Philadelphia: W. B. Saunders: 1896.

It is perhaps a matter of regret that we live in an age of rush and hurry. We have neither time for the protracted dinners enjoyed by our grandfathers, nor for the literary feasts with which they could regale their intellectual leisure. No doubt this is to be regretted. But scientific authors, and especially compilers of scientific text-books, must accept the fact, and must recognise that their first duty is to be concise. Dr M'Farland is a compiler, and his work would have been much improved had he kept this point more constantly before him. His work would have gained much by being freely pruned throughout. He has done well to confine his attention to the pathogenic organisms, and the general arrangement of the matter is good. After a somewhat tedious chapter on the history of the development of bacteriology, an account of the morphology and physiology of bacteria is given. Their relationship to the human subject is next dealt with, and the important questions of immunity and susceptibility are discussed. A fairly good description of the methods of bacteriological research concludes Part I. Part II. treats of the specific diseases and their bacteria. Under "Phlogistic Diseases" the author includes suppuration, tuberculosis, leprosy, glanders, syphilis, actinomycosis, mycetoma, farcin du bœuf, and rhinoscleroma. Under "Toxic Diseases" he considers diphtheria, tetanus, rabies, symptomatic anthrax, typhoid, cholera, and pneumonia; while as "Septic Diseases" he classes relapsing fever, influenza, malignant œdema, measles, bubonic plague, tetragenus, chicken cholera, mouse septicæmia, anthrax, and typhus murium.

Whatever may be thought of the classification adopted, it will be seen that the diseases which have been shown to depend on micro-organisms all receive consideration; and it may be said that a fairly adequate description of the present state of our knowledge in regard to the bacteriology of each is given. The figures, mostly from photographs, which illustrate the text are exceedingly good, though, of course, they can give only a very imperfect representation of the actual cultures.

The book will be found of considerable use by medical men who have not had a special bacteriological training, and who desire to understand this important branch of medical science.

The Principles of Bacteriology; a Practical Manual for Students and Physicians. By A. C. ABBOTT, M.D. Third Edition. London: H. K. Lewis: 1896.

THE first edition of this work appeared in 1891. It has now reached the third edition, and the author has taken pains to bring it up to date.

It is a useful compilation of moderate size, and it treats of most of the important questions involved in modern medical bacteriology. The practitioner will find it a useful guide to the study of the general principles of the science.

The Elements of Pathological Histology. By Dr ANTON WEICHSELBAUM, Professor of Pathological Anatomy in the University of Vienna. Translated by W. R. DAWSON, M.D. (Dub.). London: Longmans, Green, & Co.: 1895.

THE English student will welcome this excellent translation of Weichselbaum's well-known *Grundriss der Pathologischen Histologie.* Dr Dawson, while closely following the original, has not hesitated, when necessary, to intercalate fresh material, and in minor details to improve upon the arrangement.

The work is divided into three parts. Part I., on General Methods of Investigation, deals not only with the usual histological method, but also with the method of bacteriological research. Part II. is devoted to "General Pathological Histology." The general pathological processes, both of retrograde and progressive character, are each shortly described, and two chapters are devoted to the consideration of "Parasites," including not only bacteria, but also the various other vegetable and animal parasites which are found in man.

Part III. deals with the Special Pathological Histology of the various Systems and Organs.

While high praise is due to the text, still higher must be awarded to the beautiful figures with which the whole work is illustrated. Such figures save an endless amount of description, and convey at a glance information which without them must have been wearily acquired by prolonged reading.

Quain's Elements of Anatomy. Vol. III. Part 4: Splanchnology, by Prof. E. A. SCHÄFER and Prof. J. SYMINGTON. London: Longmans, Green, & Co.: 1896.

THIS volume, which originally was intended to complete the work, is now to be supplemented by an Appendix. The portion of this volume dealing with the histology of the various organs is, as is usual with Prof. Schäfer's work, beyond all praise. The Plates by which it is illustrated leave nothing to be desired. In the portion devoted to topographical anatomy much new matter and many new and excellent figures have been added. In most respects it is exceedingly accurate and full in detail, but leaves somewhat to be desired in respect of composition. It seems a pity, however, that one author has not taken the trouble to compare his own work with that of his collaborators, for, as a consequence, we have more than one discrepancy of description, which, to say the least, will be exceedingly confusing to the student. Thus we have no fewer than three different descriptive definitions of "the pylorus." And in Part 2, vol. ii. p. 383, though the arch of the aorta is described (as is usual now) as extending from the second costal cartilage of the right side to the fourth dorsal vertebra, and is said to be in the superior mediastinum, on page 169 of the present volume the arch of the aorta is given as one of the contents of the middle mediastinum; and yet only a few lines above we read, "the whole of the arch of the aorta" is in the superior mediastinum. In spite, however, of these drawbacks, the work holds the foremost place amongst anatomical text-books.

Journal of Anatomy and Physiology. Vol. XXX., Part 3, April 1896.

In this number the anatomical contributions of special value are those by Dr Robinson and by Prof. J. Symington. The former treats of the formation and structure of the optic nerve, the relation of its fibres to the optic stalk, and the relations of the optic nerve and of the retina to the brain; the latter, which bears evidence of the author's usual careful work, places before us the homology of the dumb-bell-shaped bone of the ornithorhynchus. Dr Carlier's paper on the Pancreas of the Hedgehog during Hibernation makes us wish that physiology bulked more largely in this journal than it usually does. A notable paper on Hereditary Polydactylism is contributed by Mr Gregg Wilson, and Prof. Windle gives an able report on recent Teratological Literature, a subject endless but all absorbing. A paper on some Structures in the Elbow-joint, by Mr G. M. Corner, and another by Dr E. B. Smith, on the Astragalo-Calcaneo-Scaphoid Joint, conclude this number.

Elementary Anatomy and Surgery for Nurses: A Series of Lectures delivered to the Nursing Staff of the West London Hospital. By W. M'Adam Eccles, M.S. Lond., F.R.C.S. Eng., etc. London: The Scientific Press, Limited: 1896.

The evolution of the trained nurse is producing a literature of its own, and notes, handbooks, and text-books of all kinds flood the press, and seem to obtain a ready sale. This little volume aims at giving the substance of a course of lectures on elementary anatomy, with special reference to elementary surgery. It makes no attempt to deal with the actual nursing of surgical patients. What is told in it is told in clear and precise language, and the simple woodcuts are diagrammatic enough to be instructive. But the arrangement is very peculiar. After a chapter on the Osseous System, another on the Process of Inflammation is sandwiched up before the one on the Principal Joints of the Body. Then comes Fractures, followed by the Digestive System, while Burns and Scalds intervene between the Special Senses and the final chapter on Bandaging and Instruments, which chapter is loaded with illustrations of the commonest instruments, which any ward sister could teach the stupidest probationer to recognise in five minutes from the instrument tray.

The Medical Annual and Practitioners' Index, 1896. Bristol: John Wright & Co.

This wonderful book of reference contains useful information for the practitioner on a vast number of subjects, from the most recent pharmacological novelty to the cost of life insurance in different offices in Great Britain. Amongst the original articles is an interesting one on remedial cycling, by an enthusiastic votary of the "bike," Dr Oscar Jennings. Under new treatment we get a summary of the work in practical medicine and surgery during the past year; and to keep the volume up to date, is an article on Röntgen's photography. The volume is most complete, and replete with useful information. It would be difficult to supply its place.

Anna Kingsford: Her Life, Letters, Diary, and Work. By her Collaborator, Edward Maitland. Two Vols. London: George Redway: 1895.

This book should be noticed in the pages of the Journal for several reasons. The beautiful and gifted colleague who has passed beyond the veil was a unique personality, well worth some study.

The book itself—a product of the end of the nineteenth century—recalls Swedenborg's writings, as well as those of the Hermetic school. The literature of the East, the traditions of ancient Egypt, India, and China, are not more interesting reading than the contents of this work, which seeks, and with success, to unshroud the authoress of *The Woman Clothed with the Sun* and *The Perfect Way*, the friend of the Duchesse de Pomar, of Madame Blavatzky, and of Laurence Oliphant, the successful medical student, the convinced vegetarian, the rabid anti-vivisectionist, the self-accused executioner of Paul Bert and Claude Bernard,—a woman who claimed to be a seer, a reincarnation of Anne Boleyn, who was a reincarnation of Jean d'Arc, who was a reincarnation of Faustine, who was a reincarnation of Mary Magdalene. The author of the book, Edward Maitland, tells us, and we have no reason to doubt his *bona fides*, that he is a reincarnation of the great Apostle St John!

Having read thus far, the reader may pause and throw down the review with disgust, and think that it is waste of time to read more.

> "O, that way madness lies; let me shun that."

Not so, we think. "Though this be madness, yet there's method in it." As Dryden said,—

> "Great wits are sure to madness near allied
> And thin partitions do their bounds divide.

We are living in a wonderful age,—in an age where nervous strain is greater than ever before in the world's history. The strides of science are fast causing a revolution in modern life. Ancient guesses or prophecies are being fulfilled, the discovery or rediscovery of the X rays of Röntgen, the Argon of Ramsay and Lord Rayleigh, and the process of the development of the brain by Flechsig, all show that the old theories of the *Tatwas* taught in India were not wild speculations, but that, could they be comprehended by the modern scientist, much progress would be made in many directions. "There is nothing new under the sun;" and if such wonders as these were known beforehand to the wise, why may not the predictions with regard to psychical development foretold for the end of this century or in the early years of the next be also true?

That this development may be evil, most evil, no sane man would deny; but it seems to us that the high pressure of life, the craving for something new, the unsettled religious views now held, the publication of such books as the *Ascent of Man* and *The Foundation of Belief*, all point to the way the wind is blowing. Again, when we find well-nigh two hundred spiritualistic organisations in Great Britain, and a Theosophical Society, which, all attacks notwithstanding, has branches all over the world, and many thousands of members, it does not do to shut our eyes and rest satisfied that all is well. An undercurrent of unrest, of mental and moral instability, is, we think, making itself felt, and it is our professional duty to take knowledge of it, and to be ready to aid its victims even now coming to our hands. These people will not be put off with platitudes, nor can one laugh at them; it requires knowledge of the causes of their maladies in order to treat them, and it is to the physician, and not to the priest or minister, that they turn in their bitter woe.

We need not believe in astral bodies—in the *doppelgänger*, in obsession, hypnotism, *et hoc genus omne*,—but many do, and if we are ignorant of or ignore the presence of these ideas in modern life, we fail in our duty to our profession and our clients. It is for these reasons, then, apart from all considerations of mere interest or even amusement, that we advise more than a cynical glance at Anna Kingsford's life.

A biography usually begins at birth; not so this; we are told here of previous lives. A biography usually ends as the sod closes over the coffin, but here we have it continued from that misty region which the eye would, but cannot pierce. Ordinary criticism seems barred at the outset when we read,—"The judgments pronounced no merely human opinion. They were imparted from the spheres where all things mundane are fully known and infallibly estimated." Mrs Kingsford claims to have interviewed Pallas Athene, Hermes and Swedenborg, and in one of her trances she says she visited heaven. We forbear to quote what she saw there, but a few lines from the account of her flight through the stellar universe will give an idea of the style of her experiences:—"Oh, I see masses, masses of stars! It makes me giddy to look at them. Oh, my God, what masses! Millions and millions! Wheels of planets! Oh, my God, my God, why didst Thou create? It was by Will, all Will, that Thou didst it. Oh, what might, what might of Will. Oh, what gulfs, what gulfs. Millions and millions of miles broad and deep! Hold me!—hold me up! I shall sink—I shall sink into the gulfs. I am sick and giddy as on a billowy sea. I am on a sea, an ocean—the ocean of infinite space. Oh, what depths! what depths! I sink—I fall! I cannot, cannot bear it!"

Stratford in Essex saw the birth of Annie Bonus (Mrs Kingsford) on the 16th of September 1846. One of her ancestors was a student of alchemy, another a cardinal; her father was a merchant. She seems to have been a poetess almost from the cradle; at thirteen she published a book of poems and a story, but at nine even a poem of hers appeared in a magazine. She was fond of hunting, but gave it up for conscience' sake.

She married at about twenty a gentleman who soon after became a clergyman, but she had made an antenuptial bargain that marriage should not interfere with her living "her own life."

This was fortunate, for her health gave way the day after her marriage; she could only live for a few days at her husband's home without attacks of asthma, and after the birth of her only child, a daughter, she never enjoyed good health. In her case, as in so many others, mind conquered body, and her suffering, apart from in all probability influencing her physical development, did not interfere with her work.

Her husband was sincerely devoted to her, although their lives were mostly lived apart. She said of herself: "You see I am not allowed to be as other women. I am compelled practically to be a wife without a husband, and a mother without a child, and to have a home in which I cannot dwell."

From the time of her marriage she devoted her life to set to work to champion the cause of women's rights,—the superiority of the weaker sex. She was an ardent vegetarian and rabid anti-vivisectionist. She edited the *Ladies' Own Paper*, and was fully occupied in literary work.

In commencing a medical student's career she did not take her beauty into consideration. "The women resented my looks, and the men openly declared that if I came among them as a student they would make love to me." We are sorry to note that the women both in London and Paris were jealous of her. One student in Paris was attacked by brain fever after he learnt that she was married. The Frenchmen seem to have been more kind to her than members of her own sex.

One of the professors at the Charité would not at first take her on as a student, saying that she was "neither man nor woman." He relented, however, on finding that she had given a child a bunch of violets. "She is a woman after all; only a woman would have thought of doing such a thing as that; not one of you, messieurs, would have brought flowers to a sick child in the ward," said he. A libel on the men, we think; at anyrate we have known male students do such things, and we are not quite sure that medical study renders a woman either more womanly or more sympathetic. In Dr Anna Kingsford's case, clever student and woman as she was, she seems to have learnt how to hate, how to see only one side of a question, and although very womanly in one aspect of her character she was not so in another.

We think women students may take warning from her life not to think that on graduation they possess the concentrated knowledge of the ages; that they are capable of setting all wrongs right; or, as in a case noticed in a contemporary recently, without consultation settle a question of life or death, and then rush into print and ask for professional whitewashing.

Anna Kingsford passed a brilliant final, and would undoubtedly have made a mark in her profession had not her mystical studies claimed her too exclusively. To these studies we cannot now refer.

Above we have said that she was the self-accused executioner of two "arch fiends,"—in other words, vivisectors. She held that it was in the power of the *will* of one person to influence another for good or ill. She hated vivisectors with an intense hatred. "And seeing in Claude Bernard the foremost living representative and instrument of the fell conspiracy, at once against the human and the divine, to destroy whom would be to rid the earth of one of its worst monsters, she no sooner found herself alone than she rose to her feet, and with passionate energy invoked the wrath of God upon him, at the same moment hurling her whole spiritual being at him with all her might, as if with intent then and there to smite him with destruction. And so completely, it seemed to her, had she gone out of herself in the effort, that her physical system instantly collapsed, and she fell back powerless on her sofa, where she lay a while utterly exhausted and unable to move."

At the time of this curse Claude Bernard was taken ill and died. When the news of his death came she nearly fainted. "For you it may have been only a coincidence. But we know enough to believe such things possible, and I shall not rest until I have found out, and if it prove that I really possess such a glorious power, woe be to the torturers. God willing! what a murrain there will be among them. Oh! I will make it dangerous, nay, deadly to be a vivisector. It is the only argument that will affect them. Meanwhile, thank God the head of the gang is dead. If so be that I have been the instrument, I thank God all the more for that! I shall not have come into this hell of a world in vain!"

Subsequently she tried her hand, or rather her will, upon Pasteur and Paul Bert. The former she thinks she caused a serious illness, and "compelled his retreat from his laboratory to the Riviera," and with regard to the latter we quote as follows:—"*Paris, November* 12.—Mort de M. Paul Bert,—La nouvelle de sa mort, arrivée à jeudi soir quatre heures, n'a surprise personne. Yesterday, November 11, at eleven at night, I knew that my will had smitten another vivisector! Ah! but this man has cost me more toil than his master, the fiend Claude Bernard. For months I have been working to compass the death of Paul Bert, and have but just succeeded. But I *have* succeeded; the demonstration of the power is complete. The will *can* and does kill, but not always with the same rapidity. . . . Courage; it is a magnificent power to have, and one that transcends all vulgar methods of dealing out justice to tyrants."

She thought the Bible quite justified her endeavours. To the book itself we must refer any reader who may wish for information regarding spirits, angels, devils, gods, genii, etc. We cannot deal with that part of the book here; still we have said enough to show the weird nature of the volumes, and we hope to incite interest in a remarkable, even if misguided, woman. Mr Maitland has performed his task well; he was a faithful co-worker, and is a most sympathetic biographer.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXV.—MEETING VIII.

Wednesday, May 6, 1896.—Dr ARGYLL ROBERTSON, *President, in the Chair.*

I. ELECTION OF MEMBERS.

Sir John Simon, K.C.B., was elected an Honorary Member, and Prof. MacEwan was elected a Corresponding Member of the Society.

II. EXHIBITION OF PATIENTS.

1. *Mr Alexis Thomson* showed (*a.*) for *Prof. Annandale*—A man on whose face a PLASTIC OPERATION had been performed. The nose had been destroyed by a rodent ulcer of fourteen years' duration. The condition was shown in the photograph which was handed round. The cheek was not available, having been used previously. Mr Annandale accordingly liberated a central piece from the forehead, and slid it down, then separated the central piece of the upper lip from its posterior attachments and lifted it up to fill in the gap; when the central portion of the lip had soundly healed, the edges of the lateral portions of the lip were brought together in the middle line.

(*b.*) Two cases of PERFORATING ULCER OF THE FOOT. Curiously enough, he had had an opportunity of observing four cases within the last twelve months. The first case had had for three and a half years a perforating ulcer on the sole, one on the terminal phalanx of the great toe, another over the head of the third metatarsal. For this he stretched the posterior tibial nerve at the ankle, and at the same time scraped the ulcer. It was a case of tabes dorsalis, with very severe gastric crises and lightning pains in the extremities, locomotor ataxy not being fully developed yet. The second case had an ulcer on the plantar surface of the great toe, extending into the interphalangeal joint, and there was complete anæsthesia and analgesia in the area of the ulcer. There was absence of ordinary sensibility as high as the ankle on both sides, exaggerated knee-jerks, and ankle clonus. Both cases were instances of perforating ulcer depending on nerve lesions,—one spinal, the other peripheral.

(*c*.) A patient after operation for PERFORATED GASTRIC ULCER. The man had been troubled with his stomach since last April. He was walking down Pitt Street one forenoon, when he was suddenly seized with faintness and dizziness, and a pain which he said was somewhere about the umbilicus. He got home with difficulty, and was seen by Dr Sloan, who visited him again at night. He had been practically well before. He vomited a little that evening, and was sent to the Infirmary as a supposed case of obstruction; but on his being watched there until next morning without further vomiting, the diagnosis lay between perforated ulcer and acute appendicitis. There being nothing to confirm the idea of appendicitis, Mr Thomson rather inclined to perforated ulcer. On opening twenty-four hours after perforation, he found gas in the abdomen and much turbid fluid, curdled milk, and what appeared to be egg, and a considerable amount of yellow lymph,—over the adjacent stomach and liver a large accumulation, and beneath the great omentum and in the pelvis a still larger turbid accumulation. He found an ulcer on the anterior wall of the stomach near the lesser curvature and rather nearer the cardiac end than the pylorus, and each breath sending out gushes of fluid and curdled milk through the perforation. An œsophageal tube was passed and the contents of the stomach at once drawn off. The area of the ulcer was then invaginated They washed him out thoroughly, pouring in large quantities of lotion, and splashing his bowels in fluid. A large glass tube was passed into the pouch of Douglas through a separate wound made below the navel. He made an excellent recovery. Curiously enough, there had been admitted to the wards another case of perforated ulcer last Friday, which he opened some six hours after perforation. The perforation in that case was in the anterior wall of the pylorus, and there was difficulty in closing it without obstructing the pylorus; but he also promised to do well.

2. *Dr James Carmichael* showed a little girl who, he said, had been under observation for about a year in hospital. It was a case in regard to which the diagnosis was difficult. She was seven years old. When admitted she could not walk, and was barely able to stand holding on to a chair. Before she had been long in hospital they noticed an improvement. About four months previously she had had an attack of bronchitis, and after being confined to bed for some little time, on getting up she was totally unable to walk. At present she walked with a peculiar waddling gait, and the peculiarity of the case was that the whole muscular system was feeble, and she had markedly flat feet. He had examined the case with the utmost care, and could find no evidence of disease of the central or peripheral nervous system or of the muscles,—in fact, they could not class it with any of the ordinary paralyses. The electrical reaction of the muscles was

normal. There was no sign or symptom which could be associated with disease of the nervous system,—nothing but extreme general muscular feebleness and want of tone. There was also very marked ligamentous laxity. She could bend her fingers back until they were at right angles with the hand, and the ligaments of all the joints were very lax. They had considered the possibility of pseudo-hypertrophic paralysis or progressive muscular atrophy, but the diagnosis of either of these diseases was excluded by the progress of the case. There was no atrophy of muscles; in fact, they were rather stronger now, and she had improved in strength in every way. It seemed to be a case of general muscular weakness and ligamentous laxity. There was no history of rickets in early years. Massage, gymnastics, and general tonic treatment had been carried out.

3. *Mr Wallace* showed two cases, both of which, he said, presented somewhat unusual features. The first was that of a man, 23 years of age, admitted to the Infirmary some months ago, suffering from tubercular disease of the tarsus, which necessitated amputation at the ankle-joint, strumous dactylitis of the little finger, the abscess requiring to be opened and the bone scraped. After being in hospital for some time he went out, and apparently became quite well. He came back one day, however, to let them see how he was getting on, when Mr Wallace noticed that his head was more asymmetrical than usual. He had a distinct swelling on the right side just over the anterior part of the temple. Asked if he had himself noticed it, he replied, not particularly, but that for a week or two he had had difficulty in keeping his hat on properly. He had no pain or discomfort whatever. Mr Wallace found fluctuation, and concluded that there was an abscess, probably tubercular in nature, and advised him to have it opened. He gave chloroform, made a free incision into the abscess, intending to remove the pyogenic membrane and treat it in the usual way. After opening, he introduced a finger, and found a sequestrum, which on being touched disappeared into a cavity. He now showed the sequestrum. It was of about the size of a florin, and consisted of the whole thickness of the skull. He put his finger into the opening through which it had passed, and found it entered an abscess cavity, which separated the dura mater for about 2½ inches antero-posteriorly, and nearly 2 inches vertically, while in depth between dura mater and skull it was rather more than 1 inch. It was a case of *tuberculosis perforans* (Volkmann), and presented the usual features. The edges of the opening were perfectly smooth. It had given rise to no symptoms whatever. He thought the absence of cerebral symptoms was probably due to what they observed in cases of cerebral tumour, viz., that an opening having taken place into the skull, there was relief of pressure; second, the pressure was extremely gradual; third, it was exerted

on a part of the brain that gave little evidence of pressure, viz., the frontal lobe. The treatment was that usually adopted,—scraping the wall of abscess cavity, and very careful removal of caseous material and granular thickened tissue. The cavity was then stuffed with iodoform gauze. It healed up, and the man was now quite well, no bad symptoms having occurred.

The second case was that of a patient after trephining. J. H., æt. 36, a joiner, while carrying wood on his shoulder downstairs slipped and fell. He was found unconscious. He regained consciousness in a few minutes, and was carried to the Infirmary. On admission he was very drowsy, and could only be roused to answer questions with difficulty. There were several abrasions on the face, the left ear was partially torn off, and there was a small lacerated wound over the left parietal bone, which, however, did not go down to the bone. The pulse-rate was 42; the breathing was not stertorous. Pupils equal, and reacted to light. Mr Wallace saw the patient one hour later, shortly after he had been sick. The pulse was then 60; pupils equal; no paresis nor twitchings. The drowsiness was rather less marked, and the respirations were no deeper. There was no bleeding from either the ears or nose. It was decided not to operate. The head was shaved, and an antiseptic dressing applied. Next day the pulse was quicker, 80 per minute; respirations 28, temperature 102°. Some twitching of the right hand and right side of the face was present, and there was a question of paralysis of the left hand. If anything, he was more drowsy, but he answered questions. He swallowed fluids without difficulty, and had control over both the bladder and rectum. He was apparently in a condition of "cerebral irritation," so-called. On the following day, at 11 A.M., he was decidedly more unconscious, and could not be roused at all. The temperature had fallen to normal; pulse-rate, 76; respirations, 32. Twitching and paresis as before. At 1 P.M. he was more deeply comatose, and as he seemed to be hour by hour getting worse, Mr Wallace operated, and found the following conditions:—1. A large flap, with the wound previously referred to as its centre, was reflected from over the left parietal bone, when a fissured fracture was seen to run across the parietal bone into the coronal suture, which was loosened. A circle of bone was removed at the fissure, but there were no hæmorrhages. The dura was opened, but no clots were seen. 2. Another flap was now reflected from the right side, so as to expose the coronal suture, when it was found that the suture, from being merely loosened on the left side, was actually separated towards the pteron on the right. A circle of bone, including the suture and low down near the pteron, was removed, when a number of small extradural hæmorrhages were seen, but no large clot. The dura was incised, but although a director was passed in every direction, no clots were found. On neither side was the pia arachnoid anæmic; on the contrary, it was congested, and the veins were dilated. For seventy-two hours after the operation the temperature was irregular, rising on the second day to 101°·6; the pulse-rate varied from 92 to 148, the respirations from 26 to 38. He remained unconscious until the evening of the fourth day from the accident,—*i.e.*, for fifty-six hours after the operation. On the third day after the operation the temperature became normal, and the pulse-rate and respirations gradually became slower. What was the condition in this case? No doubt at first there was concussion gradually recovered from. Probably, as the pulse became stronger, when reaction came on, small hæmorrhages were produced, which accounted for the increase of drowsiness on the day after the injury; but why did the drowsiness increase and unconsciousness result? Was it a case of passive œdema? The patient made an excellent recovery, and now, one month from the date of the injury, he is apparently perfectly well.

4. *Dr Norman Walker* showed a case of FACIAL WARTS, which the patient attributed to a "foul shave." He had communicated them from the chin to the scalp by scratching. There was a certain suggestion of molluscum, but he had removed one and found it to be an ordinary wart, consisting almost entirely of epithelium, with hardly any connective tissue in it.

III. Lantern Demonstration.

Mr Caird gave a Lantern Demonstration illustrating the PATHOLOGY OF THE APPENDIX VERMIFORMIS.

The President said he was sure the Society were all much indebted to Mr Caird for his interesting demonstration.

IV. Exhibition of Specimens.

Dr Norman Walker showed two Microscopic Specimens of SKIN DISEASE. One was a section from the only case he had seen of ringworm of the scalp in an adult. The other was a specimen of the germs said to be responsible for eczema. They were distinguished by the fact that they were arranged differently from the ordinary pus organism, being always found in collections.

V. Original Communications.

Dr George W. Balfour read a paper entitled A FEW MORE WORDS ON STROPHANTHUS, which appeared at page 1081, vol. xli. of this Journal.

The President said he would be glad to hear any remarks from Members present on this most important communication on the action of digitalis and strophanthus on the heart.

Dr Graham Brown said he rose simply to say he was quite sure the Society wished to thank Dr George Balfour for the very able and excellently clear statements that had been made. He was quite sure they would recommend themselves to all who had attempted clinically to make use of the drug.

Dr James Ritchie said he rose to thank Dr Balfour for having formulated the reasons for digitalis being so very much more useful than strophanthus. He would have liked at the same time had Dr Balfour given his experience of strophanthus, because it would have been satisfactory to have heard a little more about the cases in which that drug had been used with benefit. He had often remarked to Dr Balfour that in cases in which he wished to obtain a rapid action he could get it by strophanthus much more readily than by digitalis. He found, however, that in continuing with strophanthus he did not get beyond a certain point of improvement, whereas by long-continued use of digitalis he got a very marked continuous benefit, so that after months the heart was left in an improved condition. The patient was benefited only for the time being by strophanthus. In one class of cases he had not found digitalis of use, even a very distinct disadvantage, because of its action on the bloodvessels, viz., those accompanied by angina, and in those cases he had found strophanthus beneficial; but then one had to acknowledge that it was necessary to go on continuously with the drug. There were certain cases, however, in which they had to go on using digitalis continuously. He should like to have Dr Balfour's opinion of the relative merits of the drugs in aortic incompetence. From what Dr Balfour had stated to-night he felt encouraged to go on using digitalis.

Dr Leith said he thought the Society should not allow this discussion to languish. He hardly cared himself to speak except to express the hope that some other Members would do so. He did not hear the beginning of Dr Balfour's statement, having been unfortunately kept by a case as to which he had great doubt whether he should give strophanthus or digitalis. He gave strophanthus—he hoped he was not wrong. From what he had heard he did not think Dr Balfour had proved his contention at all. That he had proved some of it they might allow. Probably digitalis was the better drug of the two, but that it was always superior to strophanthus he thought might be doubted. They all listened to Dr Balfour's opinions with pleasure and respect, but even from him they could not accept statements, however well expressed, as convincing unless supported by sufficient proofs, and this, he thought, Dr Balfour had failed to give. There were many points touched upon by Dr Balfour to which he would like to draw attention, but he would content himself by referring to his statement that single doses of strophanthus did not stimulate the heart to contraction, but that the result of many continued doses was a single huge contraction, which left the heart exhausted. Could that possibly be true? His own experience, gained at the bedside and in the post-mortem room, supported another and more beneficial action. He had seen cases in which the heart was found post-mortem to be in a marked state of fibroid or fatty degeneration, which during life answered admirably to every dose of strophanthus. He could particularly recall one case which was enormously benefited by it. The patient had a very weak heart, and was frequently threatened with complete cardiac failure. He improved greatly under strophanthus, as shown alike by his subjective sensations, the pulse tracings, and the physical examination of his heart. It enabled him to tide over difficulty after difficulty, and apparently kept him alive much longer than had been hoped. On his ultimately succumbing, it was found at the post-mortem that the cardiac muscle showed a high degree of fibroid degeneration. Could Dr Balfour's contention be right in the light of even one such case as this? If the administration of strophanthus had merely enabled the heart to contract at intervals once more powerfully than usual, and then left it exhausted, would it not have injured instead of greatly assisting him? Could he have gone on for six weeks or two months taking a cardiac poison when his heart was, unaided, unable to do its proper work? He feared he must object pretty strongly to this part at any rate of Dr Balfour's dictum.

Dr Lockhart Gillespie said he did not want to enter into the tilt against strophanthus, but would like to ask one question. He did not think Dr Balfour mentioned, or only shortly, the diuretic action of strophanthus. He thought Prof. Fraser had shown that it had a strong diuretic action. The fact that it did not raise arterial pressure, while, on the contrary, the diuretic action of digitalis was largely due to increased pressure in the blood-vessels of the kidneys, might be of great use in treating many cases. He would ask Dr Balfour if he had found many cases which could not tolerate very small doses of strophanthus, and yet could tolerate digitalis, and this apart from the action of these drugs on the heart. He had lately seen a case of weak heart with a practitioner in town. They gave small doses of strophanthus. After receiving two doses the patient became very sick. He changed it to the tincture of digitalis, which was tolerated. One got good out of strophanthus by beginning with it and carrying on with digitalis afterwards. He did not think Dr Balfour mentioned the cumulative action of digitalis. What was a small dose for one patient was not small for another; and if they were not careful with digitalis, untoward symptoms in aortic incompetence or other heart disease might occur.

Dr Balfour, in reply, said that he looked upon strophanthus as so dangerous a poison that he was not disposed to recommend its use under any circumstances. In regard to its supposed diuretic action, he begged to remind the Fellows of the Society that in heart affections diuresis occurred, under favourable circumstances, without the administration of any drug whatever. In the course of a few months he hoped to bring before them a whole series of cases in which no drug whatever had been administered beyond a free supply of potash water. Yet in them the pulse-tracings would be found to show a gradual rise of blood-pressure, while copious diuresis would be found to accompany the general improvement of the condition. It was a mistake to suppose that because a certain drug had been given, all the benefits that followed were due to it alone. Strophanthus did not improve the cardiac metabolism, and acted only by calling on the cardiac reserve. It was therefore always a dangerous drug, and ought, he thought, to be expunged from the Pharmacopœia. In regard to Dr Ritchie's notion that digitalis was not always useful in angina, angina was only a symptom, and arose from such various causes that digitalis could not be expected to be useful in all. When, however, it arose from cardiac debility no drug was so useful as digitalis. It was *facile princeps.* Of course, when angina occurred with a feeble myocardium and a high blood-pressure, digitalis had to be conjoined with a vascular stimulant; if this were not done harm instead of good would result. With this adjunct the metabolism of the heart was improved, the debility of the myocardium remedied, and the angina cured, as he had seen in scores of cases. As for the cumulative action of digitalis, every drug was cumulative. Even Epsom salts might be administered in cumulative doses till they brought on diarrhœa. Digitalis was also cumulative, and its symptoms varied with the dose. One old friend of his, an old gentleman over 70, had a difficulty in going up even a short stair from a slightly dilated heart. This patient took a single grain of digitalis every night for over two years. At the end of that time the only sign of accumulation that appeared was a bigeminal pulse, and this peculiar symptom rarely troubled him except after food, and chiefly after breakfast. The digitalis was stopped, but it had done its work; and the old gentleman could now run up three or four pairs of stairs without the slightest difficulty. He recommended all those who had any leanings towards strophanthus to study Fraser's papers in the *Transactions* of the Royal Society of Edinburgh, and he thought if they did so their ideas in regard to strophanthus would undergo considerable modification, and digitalis, which had been gradually winning its way to the front during the last 150 years, and was only now beginning to be recognised as *facile princeps* of all cardiac tonics, would have some chance of having its actions more carefully studied. It was doubtful if there was another drug in the Pharmacopœia which was so useful. Certainly within its own range there was none more so, nor any whose action could be more easily regulated and controlled.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LVII.—MEETING VII.

Wednesday, May 13, 1896.—Prof. A. R. Simpson *in the Chair.*

I. The following gentlemen were duly elected Ordinary Fellows of the Society:—Thomas F. Burton, M.B. C.M., Locksley, Helensburgh, and Robert M. Leith, M.B. C.M., Somerset East, Cape Colony.

II. *Dr J. W. Ballantyne* exhibited (for *Surg.-Capt. Charles H. Bedford*, D.Sc., M.D.) the following abortifacients in use in the Punjab:—

(*a.*) Abortion sticks or "buttees." The sticks are dressed with cotton wool, which is smeared with an irritant paste of nutmeg, arsenic, juice of Calotropis gigantea, jequirity seeds, sodium carbonate, aloes, etc., and then passed into the cervix uteri.

(*b.*) "Marking-nuts." These are the drupes of Semecarpus anacardium, of the natural order Anacardiceæ, vernacular name "Bhilawa." The juice is highly irritant. Are used (as an application to the cervix uteri) as an abortifacient in India, and also as a medicinal agent by the natives.

(*c.*) Root-bark of Calotropis gigantea (natural order, Asclepiadeæ). An exudation used medicinally in India, and also for effecting abortion, infanticide, and suicide. The juice is known in Hindustani as "ak" or "madâr."

(*d.*) Leaves, etc., of Nerium odorum (natural order, Apocynaceæ; Hindi name, "Káner"). This is a spinal and cardiac poison used in India as an abortifacient. All parts of the plant are poisonous.

(*e.*) Fruit of Terminalia bellerica (natural order, Combretaceæ). It acts as a narcotico-irritant poison.

(*f.*) The roots and twigs of Plumbago rosea (natural order, Plumbagineæ; Hindi name, "Lal chitra"). Externally and internally it acts as an irritant. Is used as an abortifacient (rarely for homicidal poisoning) in India.

III. *Dr J. W. Ballantyne* exhibited an ANENCEPHALIC FŒTUS which one of his students had brought with him from Shropshire. The case had occurred in the practice of Dr W. Calwell of Wellington, who had kindly sent him the following notes of the clinical details:—The mother, 43 years of age, a ix.-para, was well developed mentally and physically. She had first had three children at intervals of about two years. The two eldest boys had convulsive attacks, apparently caused by slight febrile attacks; they were otherwise healthy. After a lapse of over seven years she began to bear again, and had six pregnancies. The first was normal; then came an abortion at about the third month, followed by a normal pregnancy; then came a possible abortion at about the second month; then another normal pregnancy, followed by an abortion at the third month, in April 1895. The present pregnancy is believed to have followed a normal period early in September last. The delivery took place on April 22, 1896,—that is, at the seventh month. The infant presented by the feet, and there was *very little liquor amnii.* There was "partial" placenta prævia, which caused slight hæmorrhage for six weeks before labour. The placenta was small, and appeared normal; it was inserted over the posterior lip, mostly to the left side. The *family history* on the mother's side:—She and both her parents were total abstainers. Her husband was also a total abstainer, but his father had been very intemperate during his early life. Syphilis could not be traced, but was suspected, for out of the last six pregnancies the three living children have all suffered from convulsive attacks. No history of twins. The fœtus was a female, and showed the typical anencephalic malformation of the head. The vertebral canal was, however, closed from the cervical region downwards. Slight talipes.

IV. *Dr G. Owen C. Mackness* read his paper on SOME MODIFICATIONS OF MIDWIFERY FORCEPS, which will appear in a future number of this Journal.

Prof. Simpson said he had listened with delight to the communication with which Dr Mackness had favoured the Society. The evolution of the forceps was a subject of perennial interest, and was still in progress. As regards the application handles, the Tarnier forceps which were first shown to this Society had the proximal ends turned outwards, representing a survival of the crotchets by which French obstetricians were in the habit of making traction in the old varieties of the instrument. Probably the shortening of these handles advocated by Dr Mackness might have advantages, but he (Prof. Simpson) had an impression that the ordinary length of handle gave greater facility in the manipulation of the forceps, especially in cases where there was some difficulty in locking the blades. The separability of the traction rods had been argued by Dr Mackness on satisfactory ground when he showed that the instrument could thus be more thoroughly cleansed, and the mode in which he had secured the easy removal and application of the rods to the blades seemed very simple and ingenious. The locking-plate also was of an entirely commendable construction; and he (Prof. Simpson) had no doubt the forceps which Dr Mackness had shown would prove a very serviceable and satisfactory instrument.

Dr Mackness thanked the Society for the reception of his paper, and expressed the desire that some of those who have large midwifery practice should give a trial to the shortened handles, feeling sure that if they did so they would not return to long ones.

V. *Dr J. W. Ballantyne* communicated a paper by *Dr G. Coromilas*, Calamata, Greece, upon THE TECHNIQUE OF THE DILATATION OF THE PERINEUM IN LABOUR, which will appear in a future number of this Journal.

Dr James Ritchie proposed that the Senior Secretary be instructed to convey to Dr Coromilas the thanks of the Society for his interesting paper. Regarding the advisability of dilating the perineum, he did not approve of its routine use, but, in view of the natural effects of pressure of the fœtal head on the perineum, he had, in some cases of lingering labour in consequence of feeble pains, made careful dilatation of the perineum, with the result that the strength of the pains had been increased.

Dr Church thought that obstetricians should insist on the thorough antiseptic cleansing of the external genitals before labour, as mentioned in Dr Coromilas' paper. The speaker found in practice that hot antiseptic fomentations, besides rendering the perineum more elastic, reflexly induced uterine contractions. By this simple means, therefore, the pains were increased, the perineum softened, and antisepsis carried out.

Prof. Simpson said the Secretary would convey to Dr Coromilas the thanks of the Society for the communication he had kindly sent. Probably the most valuable element of the paper was the demonstration of the value of a cocainised ointment in aiding the relaxation of the tissues in cases of rigid perineum, and in rendering them insensible to the pain that would attend attempts at artificial dilatation.

VI. *Dr J. W. Ballantyne* communicated a paper by *Surg.-Capt. Charles H. Bedford*, D.Sc., M.D., on CRIMINAL ABORTION IN THE PUNJAB, which will appear in a future number of this Journal.

Prof. Simpson said the Society was indebted to Surgeon-Captain Bedford for the interesting communication which the Secretary had read. Criminal abortion was so rarely a subject of observation with us that such an extended series of cases became valuable. When we were told of the rude methods employed for procuring the abortion, we were the less surprised to find so many ending fatally and coming under the notice of the police authorities. It did not appear that among the drugs employed there were any that seemed to have special power of stimulating uterine activity. So far as could be gathered from hearing the paper read, their action seemed to depend on the local irritation they produced.

VII. *Dr J. W. Ballantyne* read his paper entitled TERATOGENESIS: AN INQUIRY INTO THE CAUSES OF MONSTROSITIES. Part II.: Theories of the Past—Physical Causes. This paper will appear in a future number of this Journal.

Prof. Simpson thought the Society was greatly indebted to Dr Ballantyne for communicating to them his teratogenetic observations. The paper to which they had listened did not lend itself to discussion, but would be found of much value to all who were engaged in making researches in this rather neglected department of pathology.

ROYAL MEDICAL SOCIETY.

Feb. 28.—Dr Simson in the Chair.

Dr Alex. Miles showed and described several cases of Trade-like Movements following Head Injuries. These were discussed by *Drs Skirving, Giles, Elder,* and *Balfour,* and *Messrs Chiene* and *Blaikie.*

Dr Andrew Balfour read his dissertation on Asthma. After giving a rough classification he described the symptoms of a typical case. Under etiology he considered various theories:—(1.) The nerve spasm theory upheld by Wintrich, Bamberger, and Riegenberger, the spasm being regarded as bronchial or diaphragmatic, or both, as Lebert had maintained. Reference was made to the action of Leyden's crystals, discovered in 1871, and Curschman's spirals. (2.) The vasomotor theory advanced by Weber and supported by Störck. It had taken three forms:—(*a*), fluxion followed by spasm; (*b*) spasm followed by fluxion; (*c*) fluxion accompanied by spasm. (3.) The theory of herpetic or urticarial rash of respiratory mucosa. He dealt with sequelæ, diagnosis and prognosis, and entered fully into the consideration of various modes of treatment, hygienic, dietetic, and medicinal. Hay asthma, bronchitic asthma, and reflex or neurasthenic asthma were also dealt with, nasal irritation and gastric catarrh being duly emphasized as important factors in causation.

The dissertation was discussed by *Dr Purves Stewart,* who explained Sir Thomas Grainger Stewart's theory of Curschman's spirals, *Mr Brunton Blaikie, Dr Scott Skirving, Mr. T. A. Ross,* and *Mr Thomas,* who said he had himself been subject to hay fever for the last ten years. It came on during the first hot days of summer. He had tried many remedies, and for a while the only thing that availed was cocaine sprayed up the nostrils, which completely deadened it; but of late he had got relief from cigarettes and a change to the seaside.

Discussion was continued by *Messrs Anderson* and *Goodall.*

Mr George Chiene remarked that relief sometimes ensued on merely changing one's room.

Mr Fletcher said that the pollen theory was not accepted by Australian physicians. According to experiments made in Adelaide, which consisted in exposing sticky microscopic slides in the open fields at various heights above the ground, pollen was absent except in the slides carried near the surface.

Dr Greig referred to deformities of the chest as a cause of asthma in children. Suitable exercises effected a cure.

Dr H. J. F. Simson showed several specimens:—(1.) A Sarcoma of the Upper Jaw, removed from a man aged 63. It was first observed in December.

(2.) A Stump of the Upper Arm, which had been re-amputated for recurrent cancer. The man had been admitted for cancer of forearm, which had recurred in the upper arm nine months after amputation, necessitating removal of the lower end of humerus.

(3.) A Melanotic Sarcoma removed from the thigh of a woman. The patient had been admitted to hospital three and a half years ago with a large melanotic sarcoma of the left calf. Being then at the eighth month of pregnancy she was not operated on. When she returned two months after delivery the sarcoma had ulcerated. It was removed along with most of the gastrocnemius, and the wound healed quickly. She returned in about eighteen months with a small nodule in the right breast. This was excised. But six months later she returned with a recurrent scirrhus of the breast. In two months more the sarcoma recurred in the thigh. She was confined about nine months ago, and had distinct history of white leg and phlebitis, which still persisted to some extent. The inguinal glands were melanotic; the pelvic glands were merely inflamed.

(4.) A large Goitre of fifteen years' duration, the removal of which resulted in death.

Dr Simson also described several cases of Hernia, of which one was strangulated. Three were in boys aged 7, 9, and 10, with long prepuces and open inguinal canal. If a boy came to be circumcised it was well to examine inguinal rings for tendency to hernia. Two had phimosis. There was a woman with right inguinal hernia, and a youth of 18 with a strangulated hernia. The gut was returned and the case did well. The horizontal method of incision was preferable to the longitudinal, as it facilitated stitching. It was also preferable in varicocele. Of this they had three cases. In one there was a hernia and also atrophy of testicle. This patient had also had hæmatocele, for which he had been leeched. The testicle was excised and the abdominal ring stitched up. Hæmatoma occurred, for which stitches were undone and the bleeding point tied.

Dr Skirving, and *Messrs Finlay, Chiene,* and *Ross* discussed the communication.

March 6.—Dr Maclean in the Chair.

Mr A. G. Miller, F.R.C.S.E., surgeon to the Royal Infirmary, showed for *Dr Simson* a Leg which had been amputated for tubercular disease of the knee. He described the specimen in considerable detail, remarking that it illustrated the importance of sawing into the cancellous tissue in excising a joint, inasmuch as the outer condyle of the femur contained a focus of disease, in the shape of a cavity filled with buttery material, which would otherwise have escaped detection. He had found these internal foci over and over again, and had therefore published a paper, which they would find in the *Edinburgh Medical Journal* for December 1892, on Excision of the Knee Joint, advocating the use of the saw in every case. Another notable feature was the small size of the main arteries of the leg, which, in his opinion, favoured the view that the cause of atrophy of a limb in such cases was a diminution in blood supply owing to vascular contraction, arising from an irritation of vasomotor centres in the spinal cord. The atrophy was, he held, more likely to be the effect of the contraction of the vessels than the cause of it.

Dr C. C. Easterbrook proposed a hearty vote of thanks to Mr Miller for his kindness in undertaking to show this specimen in Dr Simson's absence. He asked why the atrophy picked out special muscles.

Dr Laing seconded the vote of thanks.

Mr Miller, in reply, said he was not prepared to explain why the atrophy picked out special muscles, but they might consider, in the case of the quadriceps extensor, the fact that it derived its nerve supply from the lumbar plexus, which was closely connected with the sympathetic. The vascular contraction was made permanent by the deposit of cellular tissue in the interior of the vessels.

Dr C. C. Easterbrook gave some notes on a Fatal Case of Acute Puerperal Mania, and showed macro- and microscopic specimens of some of the organs. The patient had been delivered of twins (illegitimate) by a midwife, and died from sepsis and exhaustion a few hours after admission into Morningside Asylum. The uterus contained a piece of adherent disintegrating placenta, the kidneys were the seat of multiple small abscesses, the heart and liver were markedly fatty, the spleen large and diffluent, and the lungs congested and œdematous. One of the most interesting conditions present was that of the adrenals. These were unusually large, and both were the seat of very extensive hæmorrhage, as well as of acute fatty degeneration of the gland substance. Dr W. Ford Robertson had kindly lent for demonstration two brain sections by Nissl's method, one from the case in question and one from the normal cortex for contrast. The former showed well the loss of "Nissl's granules or spindles" from the cortical cells.

This communication was discussed by *Dr Martine, Messrs Blaikie, Porritt, Ross,* and *Fowler.*

Dr Hutchison gave a brief communication upon the Nature of the Active Substance in the Thyroid Gland. He stated that he had isolated the different ingredients of the thyroid, and had administered them to patients. The reaction of each patient to the ordinary thyroid tabloids was first ascertained, and the results compared with those produced by the substance under investigation.

The results showed conclusively that the colloid matter was the active part of the thyroid, and no evidence of activity in any other ingredient of the gland could be ascertained. The chemical nature of the colloid matter was briefly dealt with, and the fact that it contained iodine in organic combination was brought into prominence. The suggestion was thrown out that this organic compound of iodine was the part of the colloid to which the latter owes its activity. The clinical and pathological bearings of this discovery were shortly dealt with in closing.

Dr Macrae Taylor and *Mr George Chiene* spoke.

Dr W. Macrae Taylor read a communication on the Causes and Treatment of Menorrhagia and Metrorrhagia, which was discussed by *Dr Macdonald* and *Messrs Fletcher* and *Chiene*.

A dissertation on Rickets by *Dr A. R. Wilson* was, in the absence of the writer and in view of the late hour and small attendance, held as read. The literature of the subject was first considered. It was remarked that references to rickets in the ancient writers were indefinite and scanty. The first to describe it at all accurately was Francis Glisson, the famous anatomist. Shortly before his time, however, various writers had dealt with what they called "*Morbus puerilis Anglorum*" or "*Tabes Anglica*." A committee, consisting of Francis Glisson, George Bate, and Ahasuerus Regemorter, was appointed to investigate the subject, and as a result Glisson's valuable monograph, entitled *De Rachitide, sive morbo puerili, qui vulgo* "The Rickets" *dicitur*, was published in 1650. His description of the morbid anatomy was good, but his account of etiology and treatment was strongly influenced by mediæval theories. In the latter part of the dissertation Dr Wilson dealt with the main features of the morbid anatomy and histology of the disease in the light of modern discoveries, and discussed the views of various authorities as to etiology.

March 13.

The annual Presidents' Dinner was held in the Royal Hotel. The company numbered about sixty. Dr Joseph E. Bowes, Senior President, occupied the chair, and the croupiers were his colleagues, Dr W. Macrae Taylor, Dr Kenneth Maclean, and Dr Henry J. F. Simson. Toasts in honour of "The Queen," "Prince and Princess of Wales and Royal Family," "Army, Navy, and Reserve Forces," were proposed by the Senior President. Surgeon-captain Watson replied for the Army, and Dr Beatson for the Reserves. The Senior President then proposed the health of their guest, Mr Watson Cheyne, referring to his eminence as a surgeon and bacteriologist. Mr Watson Cheyne thanked the Society for the high honour they had done him, and said that it gave him great pleasure to revisit his old friends and *alma mater*. He was almost tempted to wish himself a student again when he considered the many advantages now offered; but from another point of view he was glad he was not, for the amount of work now demanded of the student of medicine was something appalling. He proposed "The Royal Medical Society." Dr Macrae Taylor replied, referring to its present prosperity. Mr James Robertson Young, honorary treasurer of the Society, who had been connected with it for about half a century, was then presented with a handsome silver bowl, 11½ inches in height, 14 inches in diameter, and weighing about 90 ozs., a gift from the Fellows and Members in recognition of his valuable services. The presentation was made by Prof. Simpson, who referred to the good work done by Mr Young, not only for the Society, but also for the community generally, especially in connexion with the Schools of the Merchant Company. Mr Young, in conveying his thanks to the Fellows and Members of the Society, who from far and near had united to confer this high honour on him, expressed his gratification that so many of them were now eminent in their profession. He related incidents in the history of the Society's finances, and congratulated it on its present flourishing condition. He also thanked them on behalf of his wife for the handsome gold bracelet which they had presented to her. The toast of "The University" was then proposed by Dr Macrae Taylor, and responded to by Prof. Greenfield. Dr Maclean gave "The Medical Corporations." Dr Batty Tuke replied for the Royal College of Physicians of Edinburgh, and Prof. Chiene for the Royal College of Surgeons of Edinburgh. Dr Henry Simson then proposed the health of "Old Members." This was responded to by Prof. Crum Brown, who gave some amusing reminiscences of his connexion with the Society; also by Prof. Rutherford, who, however, cut short his speech with the remark that he had better sing a song instead. Songs were also contributed by Mr Watson Cheyne, Dr Bowes, and Dr Simson.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

Anthrax Antitoxin.—Marchoux (*Annales de l'Institut Pasteur*, November 1895) has carried out a long series of experiments on rabbits and sheep with a view to determining the relative value of serum therapeutics and vaccination in the treatment of anthrax. He finds that intravenous injections of small doses of virus are not more severe than subcutaneous, but large quantities are far more lethal when given by the former method. Furthermore, a sheep vaccinated by the ordinary method is refractory to a considerable dose of anthrax, but its serum has little prophylactic and absolutely no curative power. To develop the latter it is necessary that the animal be immunised to a very high degree, so as to resist enormous doses of virus inoculated at frequent intervals. The curative power of the serum is most marked at about fifteen days to three weeks from the time of inoculation, after which period its activity rapidly diminishes; once drawn, the serum retains its power very well. By intensive inoculation of sheep a serum can be obtained having distinct prophylactic properties. These are not as yet very considerable, but Marchoux hopes to increase them by the use of larger and more refractory animals, such as horses and asses. He finds that the amount of serum required to prevent death varies with the seat of injection of the virus into the animal, being least when under the skin of the flank, and successively increasing as the skin of the ear, the peritoneal cavity, and the veins were inoculated. The rabbits experimented on, though preserved from death, were not vaccinated, but invariably succumbed to a second dose of the virus. With regard to the curative properties of the serum, that obtained from rabbits was not found strong enough to avert death, but that from sheep was effectual if given in sufficient quantity and before the appearance of œdema. The immunity produced by this serum was found to be extremely superficial and evanescent; that resulting from vaccination is, on the other hand, both complete and lasting. The action of the former appears to depend upon a temporary increase of phagocytosis; this, also, is much more marked and persistent in vaccination by means of attenuated virus. The immunity acquired by the latter method can only be overcome when the general condition is enfeebled, as by pregnancy or exposure to cold.—*British Medical Journal*, February 8, 1896.

BEHRING'S ANTITOXIN IN ANGINA.—Blumer (*Johns Hopkins Hosp. Bull.*, Nov.–Dec. 1896) records 18 cases of angina, of which 16 underwent the serum treatment. Of these latter, three were non-diphtheritic; of the remaining 13, two, which were practically moribund on admission, died. The only case of diphtheria untreated by antitoxin was one in which no membrane appeared; the patient was cured by a bichloride spray. Among the other cases of diphtheria, one was an example of the acute lacunar diphtheria of the tonsils (simulating follicular tonsilitis), described by Koplik; and another of multiple wound infection by the bacillus diphtheria; two were due to streptococcus pyogenes, one to bacillus pyocyaneus, and one to pseudo-diphtheria bacillus. One of the cases of true diphtheria contracted a second attack three weeks after the first; in this no antitoxin was used, and a third attack supervened after another thirty-seven days. This Blumer considers to confirm the view as to the shorter duration of acquired (twenty-one days) as compared with natural (thirty-seven days) immunity. This case is also interesting as showing the possibility of auto-inoculation, and as illustrating the length of time (three months and three days) during which Lœffler's bacillus may persist in the throat in spite of chemical agents. Dithio-salicylates are less toxic than the corresponding salicylic salts.—*British Medical Journal*, Feb. 22, 1896.

THYROID TREATMENT IN THE INSANE.—Reinhold (*Münch. Med. Woch.*, Dec. 24, 1895) has used thyroid treatment in 12 cases of insanity, in which there was enlargement of the thyroid gland. Only cases of parenchymatous thyroiditis were thus treated, cystic goitres being excluded. The mental affection was always of a functional nature, and occurred nearly exclusively in young subjects. In every case the thyroid gland diminished in size. Thyroid tabloids were employed, and the treatment was continued in almost all the cases for six weeks. The average diminution in the circumference of the neck was 2½ cms., the greatest decrease being 6 cms., and the smallest 1 cm. A loss of weight was noted in nearly all cases. It could not be said that the mental affection was at all influenced by the thyroid feeding. The duration of the treatment does not constitute an objection to this view, because the specific action of thyroid treatment occurs rapidly, and soon attains its maximum; thus a further extension of the treatment is not indicated. In only one case has the author observed an increase in the thyroid after a discontinuance of the treatment. No unpleasant effects were noted. Thus the author's observations in relation to the diminution in size of certain forms of goitre during the thyroid feeding accord with those of Bruns.—*British Medical Journal*, Feb. 15, 1896.

THIOFORM.—De Buck (reprint from *Belg. Méd.*, No. 50, 1895), after drawing attention to the excellent results obtained by Rogman in ophthalmic surgery (*Belg. Méd.*, November 28, 1895, and *Flandre Méd.*, August 23, 1894), and corneal and conjunctive affections treated with thioform (basic dithio-salicylate of bismuth), praises its qualities in dermatology and medicine. Its value lies, the author believes, in its topical antiseptic, desiccative action, and in its forming a protective insulating layer for the parts beneath. All raw, weeping, or ulcerated surfaces heal rapidly under thioform, whether in the form of the pure powder or mixed with equal parts of levigated boric acid. It is indicated in all ulcerated skin affections and where epidermic softening exists. Internally De Buck found its constipating and disinfectant qualities manifest in three cases of acute enteritis; in a fourth chronic case it caused gastric irritation, and did not influence the muco-sanguinolent stools. The dose of 2 grs. for an adult, ½ to 1 gr. for a child, in powder or mucilage, was perfectly well borne by the stomach. The author considers the drug suited for internal use, since the Lœffler's soluol solution having been repeatedly employed, Blumer finds that the serum has a markedly favourable effect upon the general condition and the temperature in true diphtheria, whereas in other forms of angina the temperature is not influenced by it. In several cases skin eruptions (usually urticarial) appeared, but gave no serious trouble. He regards them as due to other constituents of the serum than those on which its antitoxic properties depend.—*British Medical Journal*, Feb. 22, 1896.

EUROPHEN.—Saalfeld (*Therap. Monatsheft.*, November 1895) gives the result of two-and-a-half years' experience of europhen in the treatment of skin diseases. As a substitute for iodoform it has distinct advantages:—(1), It does not smell; (2), it is not poisonous; (3), it is not irritating to inflamed skin. Ulcers of the leg, having usually a surrounding eczematous area, do badly with iodoform, which irritates the eczematous skin, whereas europhen soothes the burning and itching of the eczema, and quickly allays the pain of the ulcer. It is particularly useful in the treatment of children, on account of the absence of irritant and toxic properties. Intertrigo, which had resisted other remedies, yielded to europhen. Soft sores treated with the powder did well, and the number of secondary suppurating buboes seemed diminished by it. Mixed with calomel it proved useful, also, for sores of mixed character, and definite condylomata were benefited by europhen, used as a powder or as ointment. Other conditions in which it was useful were pustular eczema, folliculitis, and impetigo. After superficial operations—for example, removal of skin tumours, circumcisions, cauterisations—it proved a valuable substitute for iodoform.—*British Medical Journal*, Feb. 15, 1896.

ICTERUS DUE TO LACTOPHENIN.—Wenzel of Unverricht's Clinic (*Centralbl. f. Inn. Med.*, February 8, 1896) points out that many antipyretics and analgesics belonging to the phenetidin group owe their toxic properties to their splitting up into paramidophenol. This body is a poison to red cells, and after a time produces cyanosis and collapse. Numerous writers have reported unpleasant results from the use of lactophenin, such as vomiting, slight cyanosis, disturbance in the heart's action, erythematous rashes, etc. Gerhardt observed poisoning with collapse after a dose of 0·5 gr. lactophenin, and Tüskringer saw almost fatal collapse. Strauss recorded three severe cases of poisoning after a large amount of lactophenin had been given. There were gastric symptoms present, and also jaundice. The symptoms disappeared when the agent was omitted. The author records a case of jaundice in a morphinomaniac, aged 34, in whom severe pain was treated by lactophenin in doses of 0·3 gr. thrice daily. There were no unpleasant symptoms for fourteen days, but the pains were no better. Quite suddenly jaundice supervened. The stools were without colour, and the urine deeply bile-stained. There was no temperature, no itching of the skin, and no slowing of the pulse. The jaundice disappeared very slowly. During the height of the jaundice there was nausea and vomiting. The author thinks that the jaundice was due to the lactophenin, and especially to paramidophenol.—*British Medical Journal*, March 7, 1896.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. Allan Jamieson, M.D., F.R.C.P. Ed., Physician for Diseases of the Skin, Edinburgh Royal Infirmary ; Lecturer on Diseases of the Skin, Edinburgh School of Medicine ; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

Papular Erythema following Vaccination.—Dr George Henry Fox observes that many evil results which are popularly ascribed to "bad matter" are due either to injury or irritation of the vaccinated part, or to a personal idiosyncrasy which leads to the development of a rash, such as sometimes follows the ingestion of certain drugs or articles of food. Infection of the vesicle or pustule by atmospheric germs may induce erysipelas, furunculi, and contagious impetigo, which latter affection may be inoculated elsewhere by means of the finger-nails, and give rise to a pustular or crusted eruption which is very apt to be mistaken for "generalized vaccinia." The systemic reaction after vaccination may induce eruptions of varying types. These may appear before the development of the vesicle, but are most frequently met with when this is at its height. They may be erythematous, urticarial, purpuric, and even vesicular or bullous in character, but present no specific features which would indicate their vaccinal origin. These eruptions may depend upon some abnormal condition of the patient, in which case the vaccination cannot be regarded as the prime cause of the rash, inasmuch as it merely evokes an eruption which was already latent and which might have appeared spontaneously or from any one of a variety of causes. Dr Fox relates and reproduces in a good illustration the appearances of a case in a child of two years. The eruption appeared a week after vaccination on the vaccinated arm, and next day was general. There was redness and swelling on the ninth day round the crust, without indication that the lesion had been irritated or injured. The face was swollen, and spotted with a few irregular erythematous patches. The trunk was nearly covered with a bright red erythemato-papular eruption, which distressed the child considerably. The lesions consisted of pinhead-sized, follicular papules, mostly aggregated in small rounded patches, and confluent upon the middle of the back, where the skin appeared red and smooth. On the second day the temperature was 103°·5. It faded in the course of a few days, the vaccine crust drying naturally.—*New York Medical News*, Jan. 4, 1896.

Generalized Vaccinia.—Mr Hutchinson has done well to direct attention to this manifestation of vaccinia, so apt to be misinterpreted or to occasion unnecessary alarm. Besides the local and ordinary phenomena which follow the introduction of the vaccine virus, there are secondary eruptions more or less uncommon. In most cases it is a slight affair, an erythematous or lichenoid eruption, beginning from the seventh to the ninth day, and not lasting long. Another class of cases, probably very rare, is marked by the formation of a scanty eruption, but of formidable aspect, in which scattered vesicles develop to a large size, become umbilicated in the most characteristic manner, and exactly resemble those of gigantic variola. Hutchinson has seen but two or three of these. They were indistinguishable from variola, but he believes there was no contagion, nor, though the children were seriously ill, did any of them end fatally. But in two instances which he has seen, a healthy child vaccinated with pure lymph, from which other children were vaccinated without anything unusual occurring, and in whom the vaccination pocks had progressed well, died with a high fever and a generalized eruption which much resembled small-pox. In the instance now published, on the eighth day the pocks were perfect, and there was no undue inflammation. A few days after, the infant appeared ill, and on the tenth day an eruption was observed on the arm and face; next day it increased and became general. As none of the spots were definitely umbilicated, it was decided it was not variola. On the sixteenth day the temperature rose, and the child was much worse. On the seventeenth there was a fresh crop of eruption, consisting of confluent red papules, with a distinct depression in their centre. It had the appearance of an early stage of confluent small-pox. Some of the patches had become gangrenous at the time of death on the twentieth day. The crust left by the earlier spots might have been taken for those left in the stage of drying up. There had been no exposure to small-pox. Crocker believes the eruption to be produced by auto-inoculation at an early stage of development of the original vaccine vesicle.—*Archives of Surgery*, January 1896.

THE VISCERAL COMPLICATIONS OF ERYTHEMA EXUDATIVUM MULTIFORME.—Prof. Osler directs attention to these, which have largely hitherto escaped notice. He defines exudative erythema as a disease of unknown etiology, with polymorphic skin lesions —hyperæmia, œdema, and hæmorrhage, arthritis occasionally, and a variable number of visceral manifestations, of which the most important are gastro-intestinal crises, endocarditis, pericarditis, acute nephritis, and hæmorrhage from the mucous surfaces. Recurrence is a special feature, and attacks may come on month after month, or even throughout years. Variability in the skin lesions is the rule, and a case may present in one attack the features of an angio-neurotic œdema, in a second of a multiform or nodose erythema, in a third those of a peliosis rheumatica. The attacks may not be characterized by skin manifestations; the visceral symptoms alone may be present, and to the outward view the patient may have no indications of erythema exudativum whatever. Of the eleven cases he relates, the visceral manifestations were as follows:—In all, gastro-intestinal crises, colic, usually with vomiting and diarrhœa; five had acute nephritis, which in two cases was followed by general anasarca and death; hæmaturia was present in three cases; hæmorrhage from the bowels, stomach, lungs, and nose in several; one had spongy and bleeding gums, two enlargement of the spleen, five had swelling about and pain in the joints. The anatomical conditions associated with the visceral symptoms are not well understood, but the changes in the alimentary canal at least are probably the counterpart of those which occur in the skin, namely, exudation of serum, swelling, hæmorrhage, and in rare cases necrosis.—*American Journal of the Med. Sciences,* Dec. 1895.

PERISCOPE OF OBSTETRICS AND GYNÆCOLOGY.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E.

The Induction of Labour by the Intra-uterine Injections of Glycerine.—Dr B. M. Hypes records a case of a healthy woman who had received an injury during pregnancy which led to the death of the fœtus. Labour was induced by means of intra-uterine injections of glycerine as recommended and practised by Pelzer and A. R. Simpson, and the patient died of acute nephritis following the administration. Dr Hypes has gathered together five other cases in which bad effects followed this method of inducing uterine action. Further, the injections are often inefficient, they are also liable to the ill effects common to other intra-uterine douches, *e.g.,* shock, air-embolism, sepsis, and metritis; and, finally, glycerine poisoning, especially in the form of nephritis with hæmoglobinuria, may follow.—*American Journal of Obstetrics,* Dec. 1895.

The Surgical Treatment of Rupture of the Uterus during Labour.—Dr W. H. Krajewski has had to deal with uterine rupture in labour on five occasions: in three instances the rupture was complete, and in all these he performed total hysterectomy by abdominal incision, with two recoveries and one death; in the remaining two cases the tear was incomplete, and in one of these Porro's operation was carried out with a fatal termination, whilst in the other the surgical interference consisted in an extra-peritoneal incision, with a favourable result. It is with the last-named case and its treatment that the paper now under analysis is concerned. The patient was a x.-para, 44 years of age, and the cause of the rupture was a neglected shoulder case, with prolapse of an arm. The child was extracted, and a tear admitting four fingers was found on the right side above the vaginal portion of the cervix. This was plugged with iodoform gauze, and the woman was brought into hospital to be under the care of Dr Krajewski. The diagnosis of a rupture of the cervix and right vaginal fornix, probably without any lesion of the peritoneum, was made. It was also evident that an extensive hæmorrhage had taken place into the sub-peritoneal cellular tissue. The patient having been anæsthetised, the extra-peritoneal incision of Bardenheuer was made. The muscular layers of the abdominal wall were divided, and the peritoneum exposed and separated on the right side from Poupart's ligament. Scarcely had the right iliac fossa been thus opened into when a mass of blood, partly fluid, partly clotted, was forcibly expelled. The large sub-peritoneal cavity was cleared out, and bleeding points were ligatured (the ligation of the ruptured uterine artery was a very difficult matter), and the cavity and the interior of the uterus, with which it communicated, were packed with iodoform gauze and drained, both externally and per vaginam. The result was most satisfactory, and Dr Krajewski therefore recommends this line of treatment in cases of partial rupture of the uterus with the sub-peritoneal effusion of a large quantity of blood which increases notwithstanding vaginal plugging. Where the rupture is complete and infection is suspected, or where the margins of the tear cannot be exactly adapted, or where the rupture involves the broad ligaments, laparotomy with total hysterectomy is indicated. In a few cases laparotomy with suture of the uterine wound is the correct procedure; the indication being strict antisepsis during the labour and the absence of any involvement of the broad ligaments.—*Przeglad Chirurgiczny*, vol. iii. part 1, 1896.

SUGAR AS A MEANS OF INCREASING UTERINE CONTRACTIONS.—Some time ago Bossi brought the ecbolic action of sugar before the notice of the profession (*vide* Periscope in *Edin. Med. Journ.*, March 1894), and now Dr Kosminski gives an account of his experiences with this agent. He gave from 300 to 800 grammes of sugar daily to pregnant women; from 100 to 300 grammes to women in the first stage of labour; and from 100 to 225 grammes to patients in the expulsive stage. His conclusions are:—(1.) Sugar given in large doses to pregnant women at term increases existing uterine contractions, and may even provoke labour; at the same time it causes vomiting and diarrhœa, lasting two days or so; and glycosuria, persisting for three or four days. (2.) When given in rather large doses at the time of full term or premature confinement it increases the pains of both the first and second stages of labour, and seems also to have a favourable influence on the uterine retraction following delivery; if moderate doses are used glycosuria rarely supervenes, and when it does occur passes off quickly, without hurting either mother or infant. (3.) The increase in the pains of labour following the taking of the sugar is not always exactly proportionate to the dose employed, pointing to an uncertainty in the action of the agent upon the muscular fibres of the uterus. (4.) Large doses of sugar must be avoided in pregnant and parturient women, for it causes a rather intractable glycosuria. (5.) Its employment has no very great practical importance; but it may be used to increase the expulsive efforts in the second stage of labour, or it may be given after delivery to encourage uterine retraction.—

Przeglad lekarski, Nos. 11, 12, 13, and 14, 1895; also *Przeglad Chirurgiczny*, vol. iii. part 1, 1896.

Delivery through a Central Rupture of the Perineum.—As Dr A. Sitzinski says, central rupture of the perineum is rare, and delivery of the fœtus and placenta through the tear is still rarer. He then relates a case of this kind concerning which a communication had been made to the St Petersburg Obstetrical and Gynecological Society. The patient was 26 years of age, and a primipara; her pregnancy had pursued a normal course. The head presented in the first position, and in due course appeared at the vulvar aperture. There was great protrusion of the perineum and of the anus. Fearing a rupture, the midwife made two lateral incisions 1 cm. in depth into the perineum. Soon thereafter she was surprised to find under her hand the child's face showing through a central rupture in the perineum just in front of the anal aperture. The head soon passed through the rent, and was followed by the trunk, and ten minutes later by the placenta. From the beginning of the pains the labour had lasted twelve hours, the second stage being one hour in length. The child was of more than average size, measuring 51 cms. in length, and weighing 3650 grammes. The enormous central tear in the perineum had an irregularly quadrangular form, its upper border was the posterior vulvar commissure, and its lower one the boundary between the skin and mucous membrane at the anal ring. In order to repair the rupture the posterior vulvar commissure was cut through in the middle line, and then the parts were brought together as in the operation of colpoperineorrhaphy, first the tear in the posterior vaginal wall being closed, and then that in the rectum. With the exception of a small recto-vaginal fistula the parts healed well, and both mother and child left the hospital three weeks after labour.—*Centralblatt für Gynäkologie*, Feb. 22, 1896.

QUARTERLY PERISCOPE OF OPHTHALMOLOGY.

By William George Sym, M.D., F.R.C.S.E.

Bilateral Paralysis of External Rectus.—Heintz reports a case of this very curious and unusual lesion following diphtheria. Paralysis of both internal recti *quoad* convergence is not so very rare, but as there is no function of divergence, paralysis of divergence is extremely uncommon; however, the symptoms, as detailed by Heintz, were unmistakable—homonymous diplopia, increasing to either side, and present even in the middle line for any object further from the patient than 8 metres. The patient had full range of accommodation, and perfect pupil reactions, but alternating convergent strabismus, all objects to the left of the middle line being fixed by the right eye, and *vice versâ*. The condition began about eight weeks after the initial lesion (of the naso-pharynx), and resulted in entire recovery.—*Centralblatt für Augenheilkunde*, Feb. 1895.

MASSAGE OF THE CORNEA.—For the purpose of removing or of encouraging the removal, so far as possible, of corneal opacities left behind by ulceration of that structure, most surgeons are in the custom of employing rubbing of the upper lid over the surface of the globe, a process now dignified by the name of massage. Falta (of Szeged) thinks it is sometimes less effectual than it might be, because the patient turns his sensitive cornea away, and the massage is thus apt to be applied rather to the sclerotica. In order to check this, he makes the patient keep the other eye open, so that he can watch in what position the cornea is at any moment.—*Ibid.*, Feb. 1896.

ANTISEPTIC BANDAGES.—Bach (of Würzburg) has made careful bacteriological investigation as to the results of the application of bandages of various kinds, and confirms the statement, which clinically is already fully recognised, that by antiseptic bandaging alone one cannot prevent septic processes in the conjunctival sac; that if germs are present in the conjunctiva they work their work but little interrupted by the presence of an antiseptic bandage applied to the outside of the eyelids. [It must never be forgotten that an antiseptic bandage applied to the eyelids has little more power to prevent suppuration in an eye than if it were applied anywhere else. It should be employed merely as a support and to prevent injury; otherwise it is an evil. No surgeon would dream of applying a bandage over the mouth after excising the tongue.—W. G. S.].—*Ibid.*, Dec. 1895.

SARCOMA OF THE UVEAL TRACT.—Among eye diseases, sarcoma of a portion of the uveal tract occurs with a frequency estimated at about ·05 per cent.; but its importance when it does occur is very great. In its third stage, when rupture of the globe has occurred, with development of the tumour among the orbital contents, the diagnosis is rarely uncertain; but in the first stage, where the little tumour is concealed by a detached retina, and in the second, where glaucoma is present and the general opaqueness of the media prevents examination of the fundus, diagnosis may be attended with very great difficulty. Various plans have been suggested of testing the solidity or fluidity of the substance detaching the retina by introduction of needles, etc.; but they rarely are of much value, except in cases so obvious that no such means of investigation is required. As points in the diagnosis during the second stage, Grosz emphasizes the following:—In the presence of tumour, one eye is attacked, the eye is stony-hard, engorgement of episcleral veins is most marked at one spot, and iridectomy does not relieve the tension; the pains are continuous, not intermittent, and the eye is blind *before* the onset of acute symptoms. Grosz finds 28 per cent. of cases to be successful—a proportion which agrees fairly well with the experience of others. It is evident that the earlier the operation is done the greater the safety from local or metastatic recurrence; but it is naturally often very difficult to persuade a patient to sacrifice an eye which is still useful and is giving no trouble, even when the diagnosis is quite certain.—*Ibid.*, Dec. 1895.

SYMBLEPHARON.—Scott (of Cairo) relates two cases of extremely bad symblepharon in which he was able to obtain good by operation. He makes use of them as a text to enable him to give some very entertaining information in regard to treatment of inflammations of the eye by the natives of Egypt. Some of their remedies are decidedly heroic, as, for example, a powder employed for dusting into the eyes, called "Yellow Sheeshm"; this consists of powdered alum, calomel, sugar, flour, ginger, and cayenne pepper. They, however, carry "expectant treatment" to its logical conclusion, and say: "If the eyes are bad, wait seven days before doing anything, because, if it is the will of God, they will be better in that time; if after seven days the eyes are not recovered, it is useless to do anything, for it is plainly God's will that they shall not recover."—*Ophthalmic Review*, March 1896.

VANILLA POISONING.—The symptoms of poisoning by vanilla, which may be brought about either by eating of it immoderately or by working in it, are, in some respects, similar to those produced by benzine and turpentine; in others they resemble those of petroleum, methylic alcohol, etc.; but in regard to its action upon the genital and visual organs, vanilla is considered by Guérin to be unique. Erosions of conjunctiva and skin of the lids give a means of entrance for the corrosive oil contained in vanilla. A sensation of weight and pain in the eye and gradually increasing feebleness of vision are cardinal symptoms which are found to be accompanied by a form of choroido-retinitis. Guérin has been struck by the close resemblance of the disease to glaucoma.—*Annales d'Oculistique*, Oct. 1895.

ERYTHROPSIA.—Fuchs has experimented on himself and his friends in regard to the production of erythropsia by exposure to light reflected from snow. On coming into a darkish hut after being out in snow light for an hour or two, he looks fixedly at a black and white chessboard, and at the first moment the black squares have a green appearance, and the white then assume the same aspect. Then the white turn of a shining red colour, and the black may follow suit, so that in about a minute erythropsia is well established; it may last about two or three minutes; the colour is of a bright light purple not represented in the spectrum; frequently only the peripheral parts of the field were affected. The production of erythropsia is facilitated by dilatation of the pupil, and particularly by extraction of the lens; the normal, and especially the senile lens, transmits fewer of the short-waved rays than it receives, and so protects the retina from dazzling; at a high altitude the light is more rich in these rays, and therefore erythropsia is more easily produced. Fuchs is of opinion that the cause is to be found in visibility of the retinal purple, which is just being re-formed in a dull light after its (comparatively) complete absorption by prolonged exposure to bright, short-waved rays.—*Ophthalmic Review*, Aug. 1895.

OCCASIONAL MEDICAL PERISCOPE.

By A. LOCKHART GILLESPIE, M.D., F.R.C.P. Ed., Medical Registrar of the Royal Infirmary, Edinburgh ; Lecturer on Materia Medica.

INTESTINAL SEPSIS.—In a Periscope published in this Journal in June 1895, I drew attention to the work of Pöhl, Winternitz, and Schmitz on decomposition in the intestines. Herter and Smith have since then published some "Observations on Excessive Intestinal Putrefaction," in the *New York Medical Journal* for July 13 and 20, 1895. They estimated the amount of decomposition in the intestinal tract by the usual method, *i.e.* by the ethereal sulphates in the urine. Unluckily, several of the drugs used for intestinal antisepsis, such as salol and resorcin, are themselves eliminated as ethereal sulphates, and results obtained after their use are of little value. Clinical evidence, however, shows that salol at least is of considerable power in intestinal indigestion (pain, flatulence, and diarrhœa); 2-grain doses of salol every hour rapidly relieve the symptoms. Neither hydronaphthol nor betanaphthol, in doses which could be borne, up to 6 grains, showed any result. Salicylate of sodium proved to be very valuable in 15-grain doses thrice daily. If that amount could not be tolerated, little good ensued from the smaller doses. The evidence *re* calomel as an efficient intestinal antiseptic is very conflicting.

The nature of the food taken has, of course, a great influence on the amount of decomposition arising in it. "We are inclined to think," say Messrs Herter and Smith, "that this difference in the readiness with which certain kinds of animal and vegetable proteid food undergo putrefaction in the intestine is intimately related to the digestibility of these foods, and the readiness with which they enter into the nitrogenous metabolism of the body." Milk diet is the best for those suffering from excessive intestinal putrefaction,—preferably, however, mixed with some carbohydrates and a little meat. Peas and beans, oatmeal, whole wheat, Indian meal, etc., must be excluded. Rice or farina may be allowed if well cooked. Eggs, if soft boiled, are well borne. A pure meat diet often brings relief from the symptoms, if persisted in for a few days. Fats, as a rule, do no harm, but in some acute cases do not agree. Physical over-fatigue should be avoided. It is worth noting also that epileptics often are much benefited by treatment directed towards diminishing intestinal decomposition. The amount of indican in the urine usually decreases synchronously with the aromatic sulphates.

Fenton B. Turck (*Journ. of the American Med. Assoc.*, June 22, 1895) prescribes a pill containing oil of cloves and oil of cinnamon, and, in some cases, ox-gall, for intestinal putrefaction. The pill is coated with several layers of shellac and betol, to preserve it until it reaches the intestines.

The amount of indican present in the urine of a patient not only indicates the degree of putrefaction present in the intestines, but, according to Charles E. Symon ("The Modern Aspect of Indicanuria," *American Journ. of the Medical Sciences*, July and August 1895), also shows the presence of diminished hydrochloric acid in the stomach. Cause and effect are easily recognised here, as HCl is so potent a germicide. This paper is well worth perusal.

SERO-THERAPEUTICS.—The literature of the antitoxin treatment of diphtheria for the last few months would alone fill a volume, while that referring to other modes of applying animal fluids for the cure of disease is almost as voluminous. One or two points, however, are worth noticing, but the notices must necessarily be very brief.

Thyroid Gland.—The active principle of this gland has been supposed to be thyreoidin, thyreoproteid, and thyreoantitoxin. Baumann (*Pharm. Ztg.*, 1896, xxxvii. p. 58) has separated from it an organic compound which contains a large amount of iodine, is termed thyreoiodine, and which he regards as the active principle. It has the same effect on the body as the gland itself, according to the discoverer; but Gottlieb lately (*Dtsch. Med. Wochenschr.*, xxii. 15, s. 235) states that it has no beneficial effect on dogs deprived of the thyroid gland, and that it does not contain the essential body, the loss of which causes the well-known symptoms. With regard to the proteid metabolism during thyroid feeding, Wendelstadt and Bleibtreu (*Ibid.*, xxii., 1895) ascribe the loss of weight which occurs to a negative balance in the nitrogenous metabolism. Richter (*Centralblatt f. Innere Med.*, Jan. 18, 1896) ascribes this result to insufficient diet, which only equalled 1731 calories; and, holding the experiments to be inconclusive, repeated them on a man weighing 71 kg., to whom a diet corresponding to 2988 calories was given. From 2 to 4 tabloids (each = 0·3 grm. thyroid) were given. The weight increased before the tabloids were commenced, decreased during their administration and for three days after. The nitrogen balance was diminished, the excretion of uric acid, of ammonia, and of phosphoric acid increased in the urine, and the last in the fæces also. Scholz (*Ibid.*, Oct. 26, 1895), giving 4 tabloids daily to a woman with exophthalmic goitre, who weighed 53·4 kg., and received a diet equal to 2359 calories, found a most extraordinary increase in the amount of phosphoric acid eliminated in the fæces. Before the thyroid was given only 0·3338 grm. of the acid was passed daily from the bowel, and 1·41 grm. in the urine; afterwards the numbers were 3·42 grm. and 1·49 grm. respectively.

		Intake.	Output.	Difference.
Phosphoric acid,	Before,	2·814 grm.	1·7535 grm.	1·0601
	After,	2·818 „	4·9125 „	2·0945
Nitrogen,	Before,	...	...	7·43 grm.
	After,	...	...	7·09 „

The patient lost weight. A similar investigation on a healthy man showed an increase in the phosphoric acid balance of from 2·9 grm. to 3·8 grm. The practical significance of these observations is that the loss of weight which occurs during thyroid treatment is due to a minus nitrogen balance. This balance is not much changed in exophthalmic goitre, but here the phosphorus outgo is very much increased. Phosphates might, therefore, be of use in this disease. Formánek and Haskovec (*Klin. Zeit-und-Streitfragen*, 1895) show that in dogs the thyroid is a hæmotopoietic organ, excision causing destruction of corpuscles and diminution of hæmoglobin. Subsequent administration of the gland causes the blood to return to the normal.

Part Fifth.

MEDICAL NEWS.

A COMPETITIVE EXAMINATION for twenty-five Commissions in the Army Medical Staff will be held on the 7th August next and following days. Particulars thereof will be found in our advertisement columns.

THIRD INTERNATIONAL CONGRESS OF DERMATOLOGY, to be held in London, August 4th to 8th, 1896, under the Presidency of Mr Jonathan Hutchinson. *Programme:* DERMATOLOGY.—SYPHILIS.

Tuesday, August 4th. — 11 A.M. Preliminary Business. 12 noon, Presidential Address. 3 P.M. Subject—"Prurigo." 1. Dr Besnier (Paris); 2. Prof. Kaposi (Vienna); 3. Dr J. C. White (Boston, U.S.A.); 4. Dr Payne (London).

Wednesday, August 5th. — 9 A.M. Clinical Demonstration of Cases. 10.30 A.M. Subject—"The Etiology and Varieties of Keratosis." 1. Dr Unna (Hamburg); 2. Dr H. G. Brooke (Manchester); Prof. V. Mibelli (Parma); Dr W. Dubreuilh (Bordeaux). 10.30 A.M. Subject—"Syphilitic Re-infection." 1. Prof. Fournier (Paris); 2. Prof. Lang (Vienna); 3. Mr Alfred Cooper (London); 4. Dr Fitzgibbon (Dublin). 3 P.M. Papers.

Thursday, August 6th. — 9 A.M. Clinical Demonstration of Cases. 10.30 A.M. Subject—"The Connexion of Tuberculosis with Diseases of the Skin other than Lupus Vulgaris." 1. Dr J. Nevins Hyde (Chicago); 2. Dr Hallopeau (Paris); 3. Dr Radcliffe Crocker (London); 4. Prof. G. Riehl (Liepzig). 10.30 A.M. Subject—"The Duration of the Period of Contagion of Syphilis." 1. Mr Hutchinson (London); 2. Prof. Campana (Rome); 3. Prof. Lassar (Berlin); 4. Dr Feulard (Paris). 2 P.M. Subject—"Ringworm and the Tricophytons." 1. Dr Sabouraud (Paris); 2. Prof. Rosenbach (Göttingen); 3. Mr Malcolm Morris (London).

Contributions to this debate are promised by Dr Unna, Dr Colcott Fox, Leslie Roberts, and many others.

Friday, August 7th.—9 A.M. Clinical Demonstration of Cases. 10.30 A.M. Subject—"The Nature and Relations of the Erythema Multiforme Group." 1. Prof. de Amicis (Naples); 2. Dr T. H. Veiel (Stuttgart); 3. Dr Prince A. Morrow (New York); 4. Dr Stephen Mackenzie (London). 10.30 A.M. Subject—"Malignant Syphilis." 1. Prof. Haslund (Copenhagen); 2. Prof. Neisser (Breslau); 3. Prof. Tarnovsky (St Petersburg). 2 P.M. Clinical Demonstration of Cases. 3 P.M. Papers.

Saturday, August 8th. — 9 A.M. Clinical Demonstration of Cases, followed by papers.

THE WILLIAM F. JENKS MEMORIAL PRIZE.—The Fourth Triennial Prize, of Four Hundred Dollars, under the Deed of Trust of Mrs William F. Jenks, will be awarded to the author of the best essay on *The Etiology and Pathology of Diseases of the Endometrium, including the Septic Inflammations of the Puerperium.* The prize is open for competition to the whole world, but the essay must be the production of a single person. The essay, which must be written in the English language, or if in a foreign language accompanied by an English translation, must be sent to the College of Physicians of Philadelphia, Pennsylvania, U.S.A., before January 1, 1898, addressed to Barton Cooke Hirst, M.D., Chairman of the William F. Jenks Prize Committee. Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The Committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year. The Committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

THE SURGICAL TREATMENT OF GASTRIC ULCER.—The *New York Medical News*, April 25 and May 2, contains a long and careful article by R. F. Weir and E. M. Foote on this subject. Most attention is given to laparotomy for acute perforation; two cases, one successful, are reported in detail; and a table is given, much the fullest yet published, comprising 78 cases with 23 recoveries. It is interesting to notice that our islands not only contribute more cases, but have a better proportion of successes, than the rest of the world. The importance of early diagnosis and operation is strongly emphasized. Operations done less than twelve hours after perforation show a mortality of 39 per cent.; in the next twelve hours, of 76 per cent.; and after twenty-four hours, of 87 per cent. The same branch of the subject is also treated by C. G. Cumston, in the *Boston Medical and Surgical Journal*, April 23. An ample incision, careful search for the perforation, and subsequent cleansing of the peritoneum, are of course insisted upon in both papers. With regard to the treatment of the perforation, Weir and Foote recommend, where practicable, simple suture by Lembert's method, the procedure actually adopted in a large majority of the cases; Cumston prefers excision of the ulcer before suture. Weir and Foote also deal with duodenal ulcers, subphrenic abscess, and adhesions and contractions resulting from ulceration of the stomach.

PHENOCOLL is recommended in "black-water" fever as met with on the West Coast of Africa. It has also been used successfully for malaria in Mexico, on the Congo, and in the German East Indian Colonies.

SURGEON-LIEUTENANT-COLONEL E. LAWRIE holds that "Laveran's bodies" are mostly degenerate blood cells, which are turned out by the spleen when it is dragged down from its high pinnacle of evolution by malaria. "The precise manner in which malaria acts upon the spleen can only be determined by future observation." Dr Lawrie has no belief in the parasite theory, but gives us no other to take its place. No bacteriologist will agree with him in this view.

MR SECRETARY CHAMBERLAIN is calling the attention of Colonial Medical Officers to Dr Manson's second course of lectures on Tropical Diseases, at St George's Hospital, London. Lectures on the same subject have been given for some years in the Edinburgh Medical School.

DR T. C. CRAIG has a very good paper on the "Parasite of Malaria" in the *Brooklyn Medical Journal*. In it he calls attention, amongst other things, to the importance of obtaining drinking water from deeply driven wells. It appears that in North Carolina, in those areas where deep driven wells had been introduced, malaria had greatly lessened, and in some places entirely disappeared. He holds that "the drinking of water containing the spores of the malarial parasite is one of the most certain ways of infection."

THE library of the Surgeon-General's Office in Washington now contains 116,847 volumes and 191,598 pamphlets. It is the most complete medical library in the world, and has cost Congress an average of 7000 dollars a year from 1867 to 1895.

DR OETKER sends us a pamphlet written by him on "Oeynhausen und seine Medicationere." It forms the jubilee publication of the baths of that place. At Oenyhausen there are three hot and two cold salt springs; the place is cheerful, clean, lit by gas and electricity, and well suited for a health resort. The author gives a review of the various diseases which are "cured" by the waters.

Patients suffering from scrofula, anæmia, rheumatism, chronic gout, chronic heart disease, nervous diseases, etc., may all benefit at Oeynhausen.

In the May number of the *Indian Medical Gazette* there is an article well worth perusal. It is instructive, and it may serve as a wholesome warning, showing, as it does, how easily a man on a short visit to a strange country may be misled, and be made either a tool or a fool of. Without further preface, we shall let the article speak for itself, merely indicating that the words in italics (which have been so fully contradicted) are those of Mr Ernest Hart in the *British Medical Journal* of 1st February of this year.

MR HART ON PRISON DIET IN BENGAL.

Error ubique patet; falsa est doctrina periti.

In the *British Medical Journal* for the 1st February there appeared a brief but sensational editorial on *The State of the Gaols in Bengal.* Had such alarming allegations appeared in one of the native papers that systematically abuse the British Government in India, they might safely have been ignored in this journal; but, coming as they do from the editor of such an influential medical paper as may justly claim to have the widest circulation, they ought to deserve serious consideration. A comparative analysis, however, of the statements made with the actual facts of the case would prove rather a subject for laughter, were it not for the reckless aspersions cast on members of the Indian Civil and Indian Medical Services, who are practically accused of the fiendish cruelty of systematically starving helpless prisoners for the sake of financial economy.

"*Matters are becoming desperate*" in the Bengal jails, such is the assurance of "*one of our correspondents.*" There is a general impression in India that the identity of this correspondent coincides with that of an individual who fancies he has a grievance against the local government and a grudge against the jail department.

"*The extreme zeal for economy at all hazards which is being manifested by the higher lay officials, with the view of currying favour with Government, is producing serious results.*" This is a startling accusation for an Englishman to bring against a body of his own countrymen, against men who have every right to claim the possession of the same honourable motives and upright conduct, of the same generous and humane instincts, as those of the Editor of the *British Medical Journal.*

Let us see what the head of the Bengal Government said in his resolution on the *Administration Report on the Jails of Bengal for* 1894, the last report at present available: —

> "The increase in expenditure is large, but the Lieutenant-Governor considers it is quite justified by the explanation given by the Inspector-General. The only head under which there is a decrease is that of supervision. The increases under the heads of 'Diet,' 'Hospital charges,' and 'Clothing,' are satisfactory in view of the higher mortality of the year, which might otherwise have been ascribed to undue economy. The average cost per prisoner has been Rs. 79-14-3—the highest rate that has occurred during the last ten years." Again, with reference to "the health of the prisoners and the preservation of their lives":—"This undoubtedly is the first object to be arrived at, and till it is more effectually secured than now, Sir Charles Elliott does not complain that the second object—the insurance of really punitive labour—is somewhat overlooked, or receives less consideration than it deserves."

Language such as this does not denote a cheese-paring policy, and a cold-blooded disregard of human life, such as are implied in this extraordinary attack.

It is stated that although the cost of diet per prisoner was not quite two annas, "*which is much below the cost of diet of the free population,*" yet "*complaint has been made of the amount.*" By whom? We conjecture that the local government, or the jail department, is referred to in this vague statement.

The *Pioneer*, a paper which is much more likely to have accurate information on Indian affairs than the *British Medical Journal*, expresses the following opinion in its issue of the 27th February on the subject of jail dietary being supposed to be so much inferior to that of the free population:—

> "This is an unfortunate time for bringing forward such comparisons. It is far more probable that at the present moment there are some thousands of free labourers, who, as far as diet goes, are envying the lot of the convict, with his sufficient and certain meals, than that there is a single convict in Bengal who is suffering from an insufficiency of food. As the summer advances the contrast will deepen, and while the fate before thousands is uncertain and precarious, one thing is certain, that the population in the jails will never feel the smallest pinch from the want outside."

"*This amount*" (not quite two annas per prisoner per day) "*paid for everything in the way of food the prisoners got, including cost of extras allowed to men in hospital and infirm prisoners.*" This statement is entirely erroneous. Most jails have gardens, tanks, and dairies, and, in many, paddy is grown on jail lands. The vegetables, fish, milk, and rice, which are obtained as jail produce and supplied to the prisoners, are not included in estimating the expenditure per head. Moreover, the cost of jail labour employed in the grinding of wheat, in the husking of pulse and rice, etc., is not included in the expenditure per head. The articles obtained for prison diet are purchased in large quantities at wholesale rates when the market is favourable, and are stored in granaries specially provided for the purpose; whereas the peasant, labourer, or artisan pays more for them at retail prices. The food stuffs used in jails are specially selected by the Superintendent and Medical Officer, and the prisoner gets a wholesome, unadulterated article such as the free man would find it difficult, if not impossible, to buy in the bazar.

"*The prisoners, it is stated, have come dangerously near the stage after which comes starvation.*" Such a statement is so obviously false that we do not intend to confute it otherwise than by referring those of an inquiring turn of mind to Statement B of any recent *Administration Report on the Jails in Bengal*, in which are given the numbers of those discharged from the different jails who have gained or lost in weight, or who have remained stationary. These tables form a most convincing refutation of such a charge, as also we feel confident will the Administration Report for 1895, a year in which the health of the prisoners was exceptionally good.

This cry of starvation is ludicrous when we compare it with the following extract taken from the *Annual Sanitary Report for* 1894 of the Medical Officer of a well-known Central Jail in Lower Bengal, who protests against the prisoners being over-fed:—

> "A uniform monotony in diet is just as bad for a jail population as for any other. In former years some variation in the diet was arranged for by substituting some other article for a chittak or so of rice or dâl from time to time. This is now forbidden (from fear of giving the least chance for the full diet of the prisoners being in any way curtailed or tampered with, not with a view to economy). and there is a natural hesitation to increase the expenditure in daily diet by ordering 'extras' for *all* the prison population. In the latter half of the year the expenditure for 'extras' was very heavy, and the prisoners in many instances were being over-fed because they simply could not consume the extras (which had become necessary to obtain variety) in addition to the full quantum of ordinary diet (some of which had become superfluous owing to the extras being given). This forcing of the full ordinary diet, in addition to necessary extras, led to a great waste of food. I have seen as many as fourteen tubs of waste food sent out of the jail in a day. One of these tubs was found, on weighment, to contain over two and a half maunds (*i.e.*, over 200 lbs.) of waste rice and sag."

"*The death-rate is* 47 *to* 60 *per* 1000 *in a population between the ages of* 10 *and* 50, *the normal death-rate of Bengal being about* 21." Here, again, we meet with gross inaccuracy of statement. The average death-rate for all the jails in Lower Bengal during 1895 was, we believe, 27·4 per mille. The normal death-rate of the province is *not* about 21 per mille. The registration returns of the Sanitary Commissioner for Lower Bengal show the mortality of the urban and rural circles combined to be 34·88 and 31·39 per mille for the years 1894 and 1895 respectively. The death-rates between the ages of 10 and 50 for the same years are given as 21·67 and 19·65. But any comparison between the mortality in the jails and that of the general population of this province must be misleading and conducive to wrong conclusions. The figures for the jails are absolutely accurate, whereas the figures for the general population are notoriously incomplete. In spite of the late Bengal Sanitary Commissioner's roseate reports on registration statistics, the province continues to be one of the most backward in India in this respect. Mr Hardy, the actuary, has estimated the average death-rate of Bengal to be about 44·8 per mille (Census of India, Vol. II., Appendix III.), a figure which is much more in accordance with the true state of the case than the statistics quoted above.

Mr Hart's earnest attention is invited to Dr W. J. Buchanan's article on *The Nutritive Values of the Dietaries of Bengal Jails*, to be found at page 153 of this number of the *Indian Medical Gazette*. Dr Buchanan, who, being the Superintendent of a Central Jail, has probably better "*authoritative information*" on the subject than that supplied to Mr Hart "*from various quarters*," conclusively proves that "the dietaries of prisoners in Bengal Jails compare (perhaps too) favourably with that of any other prison administration in Europe or elsewhere, and with the average daily food of the free population of Bengal." This should allay Mr Hart's fears for the welfare of the prison population in Bengal, and ought to prevent him from perpetrating a similar article in the *British Medical Journal* in future. Such a hysterical editorial, with its numerous inaccuracies and libellous calumny of Government officials, is worthy of the seditious native press, or of Pagett, M.P., and the rest of his class, the globe-trotting, pseudo-philanthropic, self-elected members for India. We would recommend Mr Ernest Hart to devote his energies to matters nearer home, on which it is more probable that he will have accurate information, such as the agitation for the better remuneration of prison surgeons in Scotland. Mr Ernest Hart appears to be striving to attain a position in medical journalism similar to that occupied by Mr Labouchere and Mr Stead in other branches of ephemeral literature. Let us hope he will succeed in his ambition of forming one of such an august triumvirate, a trio of *fin-de-siècle* knight-errants redressing grievous wrongs the wide world over. But it behoves him to be sure of his facts, and sparing of ill-founded accusations on his fellow-countrymen in exile, lest he may be so unfortunate as to have his philanthropic zeal misjudged, and lest he may run the risk of being likened unto Thersites of Homeric legend.

PUBLICATIONS RECEIVED.

A System of Medicine by many Writers. Edited by Thomas Clifford Albutt, M.A., M.D., LL.D., etc. Vol. I. Macmillan & Co., Ltd., London, 1896.

A System of Surgery, Vol. II. Edited by Frederick Treves, F.R.C.S. Cassell & Co., Ltd., London, 1896.

Prof. J. George Adami, M.A., M.D. (Camb.),—On the relationship between Inflammation and sundry forms of Fibrosis. New York, 1896.

Oscar H. Allis, M.D.,—An Inquiry into the Difficulties encountered in the Reduction of Dislocations of the Hip. Philadelphia, 1896.

Wm. Allingham, F.R.C.S. Eng., and Herbert W. Allingham, F.R.C.S. Eng.,—The Diagnosis and Treatment of Diseases of the Rectum. Sixth Edition. Baillière, Tindall, & Cox, London, 1896.

Annual Report of the Sanitary Commissioner with the Government of India, 1894. Calcutta, 1896.

John Barclay, B.Sc. Lond.,—Southall's Organic Materia Medica. J. & A. Churchill, London, 1896.

Robert Bell, M.D., F.F.P. & S. Glasg.,—Sterility. J. & A. Churchill, London, 1896.

L. Ch. Boislinière, A.M., M.D., LL.D.,—Obstetric Accidents, Emergencies, and Operations. W. B. Saunders, Philadelphia, 1896.

Henry C. Burdett,—Hospitals and Charities. 1896. The Scientific Press, Ltd., Lond.

Arthur Clarkson, M.B. C.M.,—A Text-Book of Histology, Descriptive and Practical. John Wright & Co., Bristol, 1896.

Cumberland and Westmorland Lunatic Asylum Annual Report for the year 1895.

Prof. D. J. Cunningham, M.D., D.Sc., LL.D., etc.,—Manual of Practical Anatomy. Vol. II.—Thorax; Head and Neck. Young J. Pentland, Edinburgh and London, 1896.

Prof. Norman Dalton, M.D. Lond.,—Aids to Medicine. Parts 1-4. Baillière, Tindall, & Cox, London.

Alfred Daniell, M.A., LL.B., D.Sc., F.R.S.E.,—Physics for Students of Medicine. Macmillan & Co., Ltd., London, 1896.

Derby Borough Asylum Seventh Annual Report, 1895.

W. M'Adam Eccles, M.S. Lond., F.R.C.S. Eng.,—Elementary Anatomy and Surgery for Nurses. The Scientific Press, Ltd., London, 1896.

R. Fortescue Fox, M.D. Lond.,—Strathpeffer Spa: its Waters and Climate. Third Edition. Adam & Charles Black, London, 1896.

P. J. Freyer, M.A., M.D.,—The Modern Treatment of Stone in the Bladder by Litholapaxy. Second Edition. Baillière, Tindall, & Cox, Lond., 1896.

S.-R. Dr L. Fürst,—Die Pathologie der Schutzpocken-Impfung. Oscar Coblentz, Berlin, 1896.

H. Bellamy Gardner, M.R.C.S. Eng., etc.,—The History of Surgical Anæsthesia. Baillière, Tindall, & Cox, London.

G. H. Gemmel, F.I.C., F.C.S.,—Chemical Notes and Equations, Inorganic and Organic. Baillière, Tindall, & Cox, Lond.

John Glaister, D.P.H. Camb., etc.,—Public Lecture on Microbes: What they are, and the Parts they Play.

Hangchow Medical Mission Annual Report for the year 1895. Shanghai, 1896.

W. S. Hedley, M.D.,—The Hydro-Electric Methods in Medicine. Second Edition. H. K. Lewis, Lond., 1896.

Sir George Johnson, M.D. Lond., etc.,—The Pathology of the Contracted Granular Kidney, and the associated Cardio-Arterial Changes. J. & A. Churchill, Lond., 1896.

Journal of the Scottish Meteorological Society, Nos. 11 and 12. Wm. Blackwood & Sons, Edin. and Lond.

Dr Kraus, Sen., of Carlsbad, and Henry Morris, M.A., M.B.,—The Etiology, Symptoms, and Treatment of Gall-Stones. Kegan Paul, Trench, Trübner, & Co., Ltd., Lond., 1896.

Dr J. F. Larrieu,—Guérison Radicale de la Syphilis. Second Edition. Paris, 1896.

Lewis's Diet Charts. H. K. Lewis, Lond.

Herbert Littlejohn, M.B., D.P.H., etc.,—Report on the Sanitary Condition of Scarborough during the year 1895.

A. Milnes Marshall, M.D., D.Sc., etc., and G. Herbert Fowler, B.A., Ph.D.,—The Frog: an Introduction to Anatomy, Histology, and Embryology. Sixth Edition. David Nutt, London, 1896.

Medical and Surgical Report of the Presbyterian Hospital of New York City. Vol. I. Edited by A. J. M'Cosh, M.D., and W. B. James, M.D.

Henry Orford,—Modern Optical Instruments and their Construction. Whittaker & Co., London, 1896.

Prof. Dr Polaillon.—Affections Chirurgicales du Tronc. Octave Doin, Paris, 1869.

Quain's Elements of Anatomy. Tenth Edition. Edited by Prof. Edward A. Schaefer, and Prof. George D. Thane—Appendix: Superficial and Surgical Anatomy. Longmans, Green, & Co., London, 1896.

Report of the Council of the Dublin Sanitary Association for year 1895. Dublin, 1896.

W. G. Aitchison Robertson, M.D., D.Sc.,—Clinical Diagnosis: A Practical Handbook of Chemical and Microscopical Methods. The Scientific Press, Limited, London. 1896.

Sydney Rowland, B.A. Camb., etc.,—Archives of Clinical Skiagraphy. Vol. I., Part 1. The Rebman Publishing Co., Ltd., London, 1896.

Royal Edinburgh Asylum for the Insane,—Eighty-third Annual Report for year 1895.

Horace Savory, M.B.,—Meals and Food for the Schoolboy. J. & A. Churchill, London, 1896.

W. Knowsley Sibley, M.D.,—State-Aided *versus* Voluntary Hospitals. T. Burleigh, London, 1896.

J. Bland Sutton, F.R.C.S.,—Surgical Diseases of the Ovaries and Fallopian Tubes, including Tubal Pregnancy. Cassell & Co., Limited, London, 1896.

The Lancet and the Hyderabad Commissions on Chloroform. *The Lancet* Office, Lond.

Transactions of the Obstetrical Society of London, Vol. XXXVIII. Part 1 for Jan. and Feb. 1896.

Transactions of the American Dermatological Association at its 19th Annual Meeting, Sept. 1895.

Twentieth Century Practice: An International Encyclopædia of Modern Medical Science, by Leading Authorities in Europe and America. Edited by T. L. Stedman, M.D. Vol. V.—Diseases of the Skin. Sampson Low, Marston, & Co., Limited, London, 1896.

Hermann Weber, M.D., F.R.C.P., and F. Parkes Weber, M.D., M.R.C.P.,—The Spas and Mineral Waters of Europe. Smith, Elder, & Co., Lond., 1896.

W. D. Woodburn, L.D.S.,—On Extraction, with Notes on the Anatomy and Physiology of the Teeth. Baillière, Tindall, & Cox, London, 1896.

Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Thirteenth Annual Issue. Charles Griffin & Co., Ltd., London, 1896.

Part First.

ORIGINAL COMMUNICATIONS.

I.—ON SEPARATE ACROMION PROCESS SIMULATING FRACTURE.

By John Struthers, M.D., LL.D., P.R.C.S. Ed.

(*Continued from page* 1104, *June* 1896.)

V. Anatomical Considerations in relation to the usual locality of the Separation.

(A.) Strength of the Acromion at different parts.

If the under surface of the acromion is examined in a series of scapulæ it is seen that the *sub-acromial beam*, continued from the thick external border of the spine, spreads out as a smooth thickening upon about the posterior third of the acromion. The ridge varies a little in its sharpness, and in its distance from the posterior angle, the latter according to the degree of development of the posterior angle, but the expanded beam gives thickness and transverse convexity to the posterior third of the acromion, and the surface of that part is smooth. In front of this the inferior surface is concave in both directions and more or less foraminated, and the thickness is considerably less. The transverse concavity, generally present, is increased by the lip at the outer border to which the prolongation of the coraco-acromial ligament and the deepest part of the deltoid muscle are attached; and, internally, by the usually slightly projecting lip of the clavicular facet. The distinction between these two regions on the under surface of the acromion is on a line from the posterior end of the clavicular facet outwards and backwards to some way in front of the posterior angle of the acromion, the distance depending on the development of that angle, and the line marks off, stated generally, the posterior third of the acromion from what may be called the clavicular, or anti-clavicular, region of the acromion. The line of demarcation is not always striking to the eye, but is generally so, in some acromions very much so, owing to the change from the smooth convex region to the foraminated concave region.

On the *upper surface* the distinction strikes the eye less; the part corresponding to the foraminated region of the under surface is more foraminated than on the posterior third, but the foraminated area is more encroached on by the raised smooth outer part for the deltoid attachment than on the under surface.

When the thickness of the acromion is taken at where the sub-acromial beam has spread into the general thickening, and at where the foraminated region has begun, the thinning at the latter is found to be considerable. An average thickness of 9 millimeters at the former has fallen to an average of 7 millimeters, a diminution of about $\frac{1}{12}$ inch. This line of demarcation corresponds to where the epiphysis has united, and if there is such a thing as detachment of an already united epiphysis from the ravages of advanced rheumatoid arthritis, it is where we might expect the acromion to give way. On the other hand, if the numerous museum specimens of separate acromion are to be interpreted as ununited fractures, we have no less an explanation of the fracture being so often at that locality. Anatomically it is the weak point of the acromion.

In regard to the possible detachment of this part of the acromion in advancing rheumatoid disease, if the epiphysis has not yet united, the disintegration of the intervening layer of cartilage might be expected, but the rheumatoid condition is generally one belonging to advanced life. Due time being allowed for the consolidating process, here, as elsewhere, no traces remain of former distinctness; the transition of the cancellous architecture is gradual. In the variously cut sections of the acromion in my collection there is no definite difference in the internal structure at or near the place of union. The enclosing lamina of dense bone above has become very thin opposite the clavicular facet; that below, rising as a thick lamina from the sub-acromial beam, is more marked than the upper and is prolonged somewhat further than the upper lamina. The areolæ of the cancellous tissue are smaller and more rounded in the anterior than in the posterior half of the acromion, and in the latter than in the spine, but there is no abrupt change at the post-clavicular line. Any weakness of the acromion here is to be sought, not in traces of the consolidation of the epiphysis, but in the above noted thinning of the acromion at this part. This thinness would account for the acromion giving way in advancing rheumatoid disintegration here rather than further back, but not for its giving way at the post-clavicular region more than in any part of the clavicular region, along which the thinness of the acromion continues to be as great.

(B.) INFLUENCE OF THE CLAVICULAR CONNEXION IN DETERMINING THE LOCALITY OF SEPARATE ACROMION.

The connexion with the clavicle appears to me to be the most important consideration in endeavouring to explain why the locality of the separation is usually at the post-clavicular line and also why the separation is usually permanent; and that whether the cause is fracture, or epiphyseal non-union, or detachment by rheumatoid disintegration. This part of the acromion is bound to the clavicle and is supported by it; while just behind this, where the support ceases, the acromion is thinner than it is a little further back. For these two reasons combined the post-clavicular line may be regarded as the weak point of the acromion. Then, when the separation is once established, the pushings of the clavicle against the acromion, as may be seen by a glance at Fig. 1 (page 297, Oct. 1895), must tend to prevent non-union and render the separation permanent.

While, as noticed above, fracture of the acromion may occur occasionally at any part of the process, the fact is that in all of the 13 specimens described in this paper, and they are not picked cases, the line of separation is at or close to the posterior end of the clavicular facet. They have all a family likeness, and for this the anatomical reason just given appears to account satisfactorily.

Of the 13 specimens, the clavicular facet was entirely on the separate acromial ossicle in 8, the line of separation just behind the facet. Figs. 6 and 6a (p. 297, Oct. 1895), show this most usual position of the separation just behind the facet, and symmetrically so, although one ossicle, the left, is longer than the other. In one (No. 7, fig. 8) the line of separation is about $\frac{1}{8}$ inch behind the facet; in one (No. 12) $\frac{3}{12}$ inch behind a very short ($\frac{6}{12}$ inch) facet. In one (No. 2) the atrophied ossicle was loosely connected, but there was no connexion of the clavicle to the basi-acromion. The position of the joint a little in front of the hinder end of the facet, occurring in four of the specimens, is more interesting, as giving the clavicle a rest on the basi-acromion. In two of these (Nos. 10 and 13) $\frac{1}{12}$ inch of the facet was on the basi-acromion, the facets, respectively, of $\frac{7}{12}$ and $\frac{8}{12}$ inch in length.

In one (No. 6, fig. 7) about a fourth part of a $\frac{9}{12}$ inch long facet, and in No. 1a fourth part of an $\frac{8}{12}$ inch long facet, were on the basi-acromion. As the latter was in one of the dissections, I was able to test the effect of that on the movement of the ossicle by the clavicle. When the clavicle was pushed outwards the ossicle was freely moved, when the clavicle was pushed outwards and backwards the movement was arrested against the basi-acromion. Thus, in the ordinary movements of the shoulder, the fact of a small part of the facet being on the basi-acromion does not prevent the clavicle from causing movement of the ossicle, and thus causing the false joint in the case of fracture or maintaining a separate acromion from whatever cause arising. The connexion of the clavicle to the basi-acromion by the posterior part of the acromio-clavicular ligaments, present in all the dissections except in case No. 2, did not prevent the movement of the ossicle, free enough to be recognisable in the living body on careful examination.

Applying these considerations to the case of *fracture*, we see that, in whatever way the force comes, the anterior part of the acromion is supported by the clavicle, the force taking effect at the post-clavicular line. A stroke from above by a limited weapon will break the acromion at the part struck; but when struck broadly, or when the force is transverse as in a fall on the shoulder, it is manifest that the natural part for the giving way to take place is at the post-clavicular line. If fracture is to be accepted as the interpretation of the numerous specimens of separate acromion seen in the dissecting-room and in museums, we have thus a fair explanation of the separation being usually at or close to the post-clavicular line, and a good reason for the separation being rendered permanent by the constant pushings of the clavicle against the detached part of the acromion.

It appears reasonable to regard the clavicular connexion as having an influence also in relation to the *non-union of the epiphysis.* The post-clavicular line corresponds to the line of meeting of the epiphysis with the basi-acromion. Indeed, the position and extent of the epiphysis may be regarded as being in adaptation to the clavicular connexion. In young persons, up to about the 25th year, the same kind of injury that produces fracture in the adult consolidated acromion is still more likely to fracture the intervening layer of cartilage, and the movements of the parts will maintain the separation and lead to the formation of a diarthrodial joint, as in fracture through the bony tissue of the adult. That, of course, is "fracture" (diastasis), but facilitated by the position of the epiphyseal line.

But apart from injury, the connexion to the clavicle might be regarded as a possible cause of non-union of the epiphysis, in the constant transverse force in the abutting of the clavicle against the epiphysis; that either in persons of feeble constitution or in young persons of exceptional activity, and the same cause would continue the separation. Apart from the continual operation of forces causing movement, we see a familiar instance of non-union continuing through life, if it passes the usual period of union, in the permanence of the suture between the right and left frontal bones of man; and in those mammals in which that is the normal condition we see that when forces operate, as in those of them that have horns, the suture becomes dentated. The influence of movement from natural forces in converting anywhere a synarthrodial into a diarthrodial joint is not to be overlooked. The theory of delayed union and naturally perpetuated non-union might be employed to account for separate acromion being symmetrical; but that is a rare occurrence, while, if the theory were well founded, separate acromion ought to be a very frequent occurrence, either symmetrically, or, if on one side only, much more frequently on the right side than on the left.

The supposed influence of *rheumatoid disease* in causing separate acromion must be taken to operate differently, according as it occurs before or after the union of the epiphysis. If before union, the rheumatic tendency might be supposed to delay the union, thereafter perpetuated by the same tendency or by the movements of the parts, and it should be symmetrical; but the rheumatic condition is comparatively rare in early life. Were advancing rheumatoid disease to find the epiphysis still not united, it might be supposed to attack first the intervening cartilage and thus detach the acromion, but advanced rheumatoid disease is a condition belonging to middle life or old age. If after consolidation, from the excavation of the acromion in the advanced stage of rheumatoid arthritis, the support given by the clavicular connexion should, perhaps, render the post-clavicular line the readiest part to suffer, being the place also where the forward thinning of the acromion has begun. The argument for this cause, that rheumatoid disease of the shoulder joint is often symmetrical, and that this accounts for symmetrical separate acromion, is met by my case No. 3, in which there was no rheumatoid disease, and by the fact that only two cases of the co-existence have been recorded. As against this theory, too, there is the consideration that advanced rheumatoid disease of the shoulder joint is of frequent occurrence but that the co-existence of separate acromion is exceptional. Considering that rheumatoid disease often follows on some injury, as we see so often in old-standing cases of unreduced dislocation of the humerus, one cannot avoid the suspicion that the occasional co-existence of separate acromion with rheumatoid disease of the shoulder joint has been due to some injury which had fractured the acromion and led on to the rheumatoid condition.

VI. General Considerations.

(A.) Relation to Sex, Age, and Side.

In regard to *sex* we would expect fracture, and also rheumatoid disease, to be most frequent in the male, but the above cases, so far as certain, do not show that preponderance. Among my 13 cases, of the 4 dissections in which the sex had been noted, 3 were female (Nos. 2, 3, and 4), 1 male (No. 5). Of the 8 dried specimens, 4 seem from their robustness to have been males, the other 4 uncertain. Of the 6 cases of Adams, R. W. Smith, J. G. Smith, and that in the Sir Charles Bell collection above noted, 3 were in males, 3 in females.[1]

As regards *age*, when noted, it is seen in Table II. that, of my 13 cases, the first four had reached the 80th year, three of them females; the fifth case was æt. 64, male; Adam's case (*loc. cit.*, *a*, p. 590), æt. 55, male; R. W. Smith's case (*loc. cit.*, p. 1), æt. 60, male; and J. G. Smith's case, æt. 56, female. It is to be kept in mind that a considerable proportion of the subjects in the dissecting-room are elderly or old, and, in regard to the first four of these cases, that among the aged subjects females preponderate.

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[1] Statistics relating to sex and age are liable to be influenced by a variety of circumstances. Thus, of the two schools in which I have taught anatomy; in one, the female subjects preponderated, the ratio of female to male being as about 3 to 2; while, in the other, the proportion was nearly the reverse; so that, in a total of 1200 of which I have record of the sex, the sexes came to be almost exactly equal. A more interesting statistic, as showing the basis for

I find no distinct record of a case of separate acromion occurring in a young person at the place of union with the epiphysis. Reference is made above, from Mr Lane, to the ages of the ten cases of fracture of the acromion recognised and treated at the Middlesex Hospital in the ten years ending 1879; one within the

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dissecting-room observations, is that giving the ages as well as the sex. For this I can give a statistic of only 890, as in some the precise age was not known and for about 240 the record of the age is not now available. I give the ages in five-year periods. It is seen that the number between the ages of 5 and 15 is small; that the number is large between the ages of 55 and 75, giving ample ground for advanced rheumatoid arthritis; and that after the age of 65, females preponderate, very much so after the age of 75.

Ages inclusive.	Total.	Male.	Female.	Ages inclusive.	Total.	Male.	Female.
1 to 5	37	18	19		432	213	219
6 „ 10	3	1	2	51 to 55	52	30	22
11 „ 15	7	3	4	56 „ 60	80	41	39
16 „ 20	32	14	18	61 „ 65	72	41	31
21 „ 25	56	36	20	66 „ 70	86	38	48
26 „ 30	73	29	44	71 „ 75	70	33	37
31 „ 35	46	22	24	76 „ 80	54	18	36
36 „ 40	63	30	33	81 „ 85	28	8	20
41 „ 45	46	23	23	86 „ 90	11	2	9
46 „ 50	69	37	32	91 „ 95	5	1	4
	432	213	219		890	425	465*

* This apparent preponderance of females is owing to my not now having the ages of those in the earlier years in the school in which males preponderated. Of the 1200 of which I have record of the sex, the sexes are almost exactly balanced.

In regard to proportions of sex derived from *hospital* statistics it is to be borne in mind that the male patients are more numerous than the females in general hospitals, even in the physicians' wards. In our great hospital here the proportion is as 4 to 3, and in the hospital of the other school in which I taught the predominance of the male patients was in about the same proportion.

Looking to the general proportion of the sexes, the statistics of the Registrar-General for Scotland, for the year 1895, show in regard to births that for every 100 females there are 105·2 males, but that after about the age of 10 years females preponderate in the population, the disproportion increasing as years go on, the ranks of the males thinned by emigration, the army, the sea, and greater exposure to accident and the causes of disease. Although in the total deaths females preponderate (total in Scotland, in 1895, 81,864, males 40,726, females 41,138), the proportion is reversed in the case of deaths in the large towns (males 5511, females 5382.) Dr Blair Cunynghame, of the Registrar-General's Office, Edinburgh, has kindly given me the following figures showing the proportion of women to men in the two towns to which my anatomical statistics refer. In Edinburgh, with a total population of 261,225 (census of 1891) there were 22,715 more females than males, being a ratio of 119·05 females to every 100 males. In Aberdeen, with a total population of 124,943, there were 9803 more females than males, being a ratio of 117·03 females to every 100 males. In Edinburgh, in a total of 27,554 persons at the working first five years of life, one between 15 and 30, four between 30 and 45; the remaining four above 45 years of age. But no definite information is given as to the locality of the fracture.

Side.—Reference is made above to the fact that of the 14 cases given by me 3 were on the right side, 9 on the left side, 1 on both sides, and 1 certainly on the right side, doubtfully on the left. Adding to these the cases quoted (Mr Lane, 5 right, 1 left; other authors, 3 right, 2 on both sides), we have a total of 11 on the right side, 9 on the left side, 3 on both sides, and 1 doubtfully on both sides, but certainly on the right. That is a much less preponderance on the right side than we would expect on the fracture theory, when the greater exposure of the right limb to accidents is considered. Thus in the account of 41 "Specimens of Complete Dislocation of the Humerus preserved in the Anatomical Museums of London," given by Sir W. H. Flower (*loc. cit.*, *infra*), in 36 of which the side is noted, 25 were of the right side, 11 of the left.[1]

(B.) CONCLUSIONS.

1. Fracture of the acromion process is, in all probability, a much more frequent occurrence than is usually supposed. It is liable to be overlooked from the absence, generally, of displacement, but may be detected on careful manipulation by the movement of the fragment and by crepitus. This conclusion appears to be fully established by the researches of Mr Arbuthnot Lane.

2. The facture may occur at any part; in front of the clavicular facet; opposite the facet; or behind the facet. Just behind the facet appears to be the usual locality.

3. This post-clavicular line is what may be termed the weak point of the acromion. This for two reasons: (*a*) The acromion is thick behind, supported and strengthened by the sub-acromial beam of the spine, and becomes thinner just behind the clavicular facet: (*b*) And, more especially, as the acromion in front of this

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age of 20, the excess of women was 2872; at the age of 25 the excess was 3065. As to the sexes at old age, at the age of 70, the numbers in Edinburgh were, men 1170, women 2174; at the age of 80, men 278, women 640; at the age of 90, men 21, women 53. In Aberdeen, at the age of 70, there were 692 men, 1264 women; at the age of 80, 180 men, 415 women; at the age of 90, 7 men, 32 women. These figures are not without interest in relation to the anatomical statistic above given.

[1] Although in the above-noted 24 cases of separate acromion only 3 are recorded as having the condition on both sides, it is not to be absolutely concluded that it may not have been present on the other side also in some of the other cases. Although it may, perhaps, be inferred generally that the condition was present only on the side preserved for the museums, those who are familiar with dissecting-room work will not infer that the other side was always examined or notes made, but we must go by what is known.

is bound to and supported by the clavicle. Forces therefore tend to tell most on this part of the acromion.

4. The alleged relation between *rheumatoid arthritis* of the shoulder joint and separate acromion, as dwelt on by Adams and R. W. Smith, appears to be founded on misapprehension. The cases in which the co-existence has been recorded are not numerous, only 7 in number among the numerous cases of that disease in its advanced condition in which the parts were dissected. While there need be no difficulty in accepting the opinion that among the upward ravages seen in chronic rheumatic disease of the shoulder joint detachment of an ununited epiphysis, or detachment of an ossified acromion, may be one of the disintegrations, there is reason to believe that the rheumatoid condition is usually the result of former injury to the shoulder by which fracture of the acromion had been caused.

5. In regard to the non-union or separation of the *epiphysis* theory, the following are the considerations for and against it:—The place of junction of the epiphysis corresponds to the post-clavicular line. But although the epiphyseal line thus corresponds to the weak point of the acromion it is not the cause of the weakness, as after the union is completed (between the 22nd and 25th year) there is no difference in the internal structure and no special thinness exactly at the line of union. The correspondence of the two lines is incidental except in so far that the extent of the epiphysis appears to be in adaptation to the clavicular connexion. But the fact of the correspondence of the two lines introduces the element of doubt in the interpretation as between fracture and epiphyseal separation, when the separation occurs, as it usually does, at the post-clavicular line.

In support of the epiphysis theory may be given: (*a.*) That the usual place of separation corresponds to the place of epiphyseal meeting, expressed generally. Looking to the figures 2 to 5 of the development of the acromion given in the Plate (p. 297, Oct. 1895) we appear to have a satisfactory explanation of the locality being the usual one. (*b.*) It is conceivable that union may be delayed beyond the 25th year, and that if union does not occur at the usual period non-union may be permanent, as seen occasionally in the case of the inter-frontal suture. (*c.*) If the specimen has been from a subject under the 25th year the intervening layer of cartilage may have been broken by an accident to the shoulder, and the synarthrodial connexion thus converted into a diarthrodial joint by the movement of the parts, as after fracture of the ossified acromion followed by non-union. That, of course, brings the case into the category of fracture (diastasis), but the line is determined by the epiphysis.

Against the theories of non-union or detachment of the epiphysis, as occurring in the living body, may be put: (*a.*) There is a source of fallacy in regard to the interpretation of some specimens met with, in that they are but normal scapulæ just under the age at which the acromial epiphysis (the last of the epiphyses of the scapula to unite) is consolidated; the separation having taken place during maceration. Such scapulæ, wanting the epi-acromion but otherwise full-grown, are to be seen in museums. But in regard to specimens undoubtedly beyond that age—(*b.*) The line of post-clavicular separation is not exactly what would be expected had the cause been non-union or detachment of the epiphysis. Among the 13 specimens described in Part III., the separation begins, on the inner side, in some exactly at or very close to the posterior end of the facet (figs. 6 and 6a, case 3, and in cases 4, 5, 8, 9, and 11); in some a little in front of that point (fig. 8, case 7, $\frac{1}{8}$ inch in front; case 12, $\frac{3}{12}$ inch in front); in some a little behind (fig. 7, case 6, $\frac{1}{6}$ inch behind; case 1, $\frac{1}{6}$ inch behind; cases 10 and 13, $\frac{1}{12}$ inch behind).

These moderate variations in the starting-point of the separation on the inner side do not, perhaps, go against the epiphysis theory, as we do not know that normally the posterior limits of the epiphysis and of the facet correspond precisely to each other, but the outward course of the line of separation is not much, in some the opposite, of what we should expect when we bear in mind that epiphyses have a very definite shape. As seen in figs. 2 to 5, the epiphysis meets the basi-acromion in a line curving outwards and very much backwards from the posterior end of the clavicular facet. Even should the posterior nucleus (*fig. 4) not unite with the main body of the epiphysis, the line of union is still curved with the concavity backwards. But in some of my specimens, as described, there is very little backward direction of the outer part of the line; in some the outward direction is even a little forwards. Figs. 6 and 6a show the direction to be different on the two sides in the same person, though symmetrical in regard to beginning on the inside just behind the facet. On the whole, the general direction of the line of separation, while somewhat undulating, may be regarded as transverse or nearly so.

Allowance must, no doubt, be made for any changes of form during perhaps many years of active working at a false joint after a supposed epiphyseal detachment; but, on the whole, when the line of separation usually seen is considered, the epiphyseal theory, whether by delayed union or by detachment, fails to satisfy, while the line of separation, as usually seen, with its minor variations at the post-clavicular region and its general transverse direction, tends to support the fracture theory.

6. The occasional occurrence of *symmetrical* separate acromion appears at first to be a difficulty in accepting the view that in all cases the condition is one of fracture, while it is intelligible on the theory of delayed union of the epiphysis, or as a result of advanced rheumatoid disease of both shoulder joints. Of the three cases above referred to, in two (those by R. W. Smith and

J. G. Smith) there was rheumatoid disease, while in my case (No. 3, a female æt. 82, figs. 6 and 6a) there was no disease. These two theories, however, when critically examined as above, must be regarded as improbable, as inapplicable to at least the great majority of the specimens. It remains only to inquire whether the seemingly not very likely occurrence of fracture of both acromions can be believed as, after all, not so very unlikely to occur. This difficulty will disappear when we think of the occasional occurrence of dislocation of both shoulder joints, a result implying a much more forcible cause than would suffice to fracture the acromion. Of this occurrence I subjoin a reference to five cases.[1]

With such examples of symmetrical injury, in two of them both sides dislocated simultaneously, we need have little difficulty in believing in the occurrence of symmetrical fracture of the acromion process; the less so when we think of the number of tumbles the old frequenters of the drink-shops of London, Dublin, and Edinburgh must have had, first on one shoulder then on the other, before arriving finally at the dissecting-room.

The epiphysis theory is attractive to the anatomical mind, and it is not easy to part with the impression of one's earlier years in the dissecting-room, but when the evidence is critically examined has to be abandoned for the fracture theory. The explanation above given of the frequency of the locality in which the fracture is found to have occurred, the post-clavicular line, giving the family likeness to the great majority of the specimens, is, however, no less an anatomical one, and appears to me to be the true interpretation.

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[1] 1. Adult male, the case in the Sir Charles Bell collection in the Edinburgh College of Surgeons' Museum, above noticed. Old-standing unreduced subglenoid dislocation of the humerus of both sides. Rheumatoid changes in both shoulder joints. Acromion fractured on left side with bony union.

2. In the same museum (New Cat., p. 193, Nos. 5, 6). Plaster cast of the front of the chest and shoulders of an adult. The dislocation on the right side was recent, that on the left side was old standing. Presented by the late Dr J. D. Gillespie, surgeon to the Royal Infirmary of Edinburgh. The dislocation is very manifest in both shoulders.

3. Case recorded by Mr C. E. Oldacres, of Daventry (*British Medical Journal*, Nov. 9, 1895, p. 1162). A very muscular man; fell from roof of cottage; sub-glenoid dislocation of both shoulder joints, and fracture of left thigh-bone. Dislocations reduced.

4. Dr R. M'Dougall, of Gladstone, South Australia, relates (*same Journal*, 8th February 1896, p. 383) that the late Professor Sir George Macleod showed his pupils, at the Glasgow Royal Infirmary, in 1871, a case of dislocation into the axilla in both shoulders, and their reduction, in a woman æt. 45 or 50.

5. By Professor T. P. Anderson, of Sydney (*same Journal*, June 6, 1896), p. 1385). In the dissecting-room; old-standing dislocation of both shoulder joints. The man had been able to go about his work, as a drayman, until he was accidentally killed when intoxicated.

Appendix.

(*a.*) *Condition of the parts in Case No.* 1, *considered in relation to the occurrence of indentation or fracture at the anatomical neck of the humerus, accompanying sub-coracoid dislocation.*

Besides presenting characters of advanced rheumatoid arthritis following on the old injury, the chief interest of this specimen is in the femur-like elongation of the neck of the humerus, with a deep and wide post-cervical excavation. This character seems to render the specimen worthy of exact examination in relation to the apparently not infrequent occurrence of injury to the humerus as a complication in sub-coracoid dislocation. The condition in this specimen resembles that in the specimen noticed by me in 1862 (*this Journal*, vol. viii., 1862, p. 274) from a male subject æt. 76, now in the museum of the Edinburgh College of Surgeons (New Cat., vol i., p. 192, No. 5, 5) to which reference will be made below in comparison.

Condition of the parts. Subscapularis muscle present and of good size for a rather undersized scapula. *Ligaments:* Good capsular ligament all round. *Scapular attachments:* above, to inner half of anterior border of coracoid, for 1 inch, the coracoid broadened anteriorly at this part; from this, attachment continued internally and below along inner and lower edge of new glenoid cavity. Externally and below, attachment normal along posterior and lower border of old glenoid cavity. *Attachments to humerus:* outer part to outer edge of great tuberosity; anterior and posterior parts to anterior and posterior borders of elongated neck; inner part, normally along original anatomical neck. Outer part of capsule thicker than normal, inner part not thickened. Thus, the capsule embraces both glenoid cavities above, and, below, not only the head but the elongated neck, out to the outer border of the great tuberosity.

Interior of the joint: Shows old-standing sub-coracoid dislocation, new sub-coracoid glenoid cavity, great elongation of neck of humerus, with deep and broad excavation behind, and changes from rheumatoid disease on both surfaces of joint, but these not extending upwards above old glenoid cavity. *Old glenoid cavity:* dimensions normal, height 1½ inches, breadth 1 inch; spongy at middle for half its breadth, upon which soft part of inner wall of great tuberosity of humerus has rested; eburnated behind, before and below the soft spongy part. Inner edge projects more at upper than lower half (the reverse of the normal); eburnated area towards this most projecting part corresponds to eburnated area on inner wall of great tuberosity, the projecting edge itself sinking to the bottom of the post-cervical excavation on humerus. Less projecting lower half of glenoid edge is rather rounded off towards new glenoid cavity, but is not much worn down.

New glenoid cavity: On subscapular fossa immediately to inner side of old cavity and continuous with it round the projecting eburnated inter-glenoid ridge. Dimensions greater than of old cavity, vertically 2 inches, transversely 1⅜ at lower half, less than that at upper half. It reaches up on base of coracoid process for ⅞ inch, occupying entire breadth of coracoid, which is here flattened and excavated vertically to form part of cavity. This coracoid part of new cavity reaches higher up than old cavity by about ¼ inch. Inner boundary of new cavity below this is marked by a sharp prominent ridge, running downwards and outwards on subscapular fossa. Concavity of new cavity much more marked vertically than transversely, owing to vertical curve of coracoid part. Surface of new cavity, spongy, with fibrous tufts, along inner half, eburnated along outer half. Against the eburnated part has played the back part of head of humerus, the part of the rheumatoid ring marked off from the smooth central part of the head. The projecting eburnated inter-glenoid ridge forms a bluntly acute angle, is above middle of old cavity, and opposite about middle of new cavity.

Humerus.—On articular surface of *head* two areæ to be distinguished,—a central ovoid area, size of pulp of thumb, smooth but thin articular cartilage which can be sliced with the knife; around this central area is a ring of irregularly nodulated smooth eburnated surface. The central area plays against inner (now anterior) side of capsular ligament, behind subscapularis muscle, bulging these forwards. The only part of the eburnated ring that has not rested merely on capsular ligament is the back and upper part, where it is increased in breadth, to about an inch, outwards to the excavation on the neck; this is the part that has played in the upper and inner part of the new glenoid cavity. This gives back of head a flattened shape (with a little transverse convexity) for an inch in length outwards. The normal anatomical neck should intersect the middle of this flattened part, but the form has been altered by the elongation at the back of the head throwing the anatomical neck outwards to where the excavation begins, in adaptation to the new glenoid cavity.

The *post-cervical excavation*, $1\frac{1}{8}$ inch wide at the opening, about $\frac{2}{3}$ inch deep, receives a good-sized finger. Outer wall eburnated on its upper part, where it played against the eburnated part on upper half of old glenoid cavity. Bottom of excavation over $\frac{3}{4}$ inch in length, has received the prominent wedge-like inter-glenoid ridge, and is smooth and polished behind, corresponding to lower part of the ridge. Inner wall of excavation, which has rested in lower and outer part of new glenoid cavity, is less smoothly eburnated.

Divergence of great tuberosity. The great tuberosity is abnormally inclined outwards from line of shaft, here to extent of $\frac{3}{4}$ inch, the inclination beginning abruptly at $1\frac{1}{4}$ inch from summit of tuberosity. (Normal inclination in robust humeri only $\frac{1}{4}$ inch, or less, and much more gradual.) *Appearances of former fracture.* Below great tuberosity, on outer surface of shaft, there is appearance as if a scale or splinter of bone, $1\frac{1}{2}$ inch in length, $\frac{5}{8}$ in breadth, lower end $2\frac{3}{4}$ inches from summit of tuberosity, had been broken off and united. Scale is continuous with the tuberosity, as if both had been broken off together; the grooves bounding it are continued behind from just behind posterior border of tuberosity, in front from neck of humerus some way in front of tuberosity. The grooves are sharp and very evident, less so towards tuberosity. That there had been fracture is confirmed on making a longitudinal *section* of the head, neck and upper $\frac{1}{3}$ of the shaft. The appearances then seen are:—Medullary canal of shaft reaches into outer half of neck. Cancellous tissue of head easily broken down. Line of articular lamina of head distinctly seen to extend underneath the eburnated raised ring above noticed, which rises upon the lamina for $\frac{1}{4}$ inch. Line of former fracture well seen as a narrow lamina of dense bone intersecting the cancellous tissue internal and external to it; begins above at outer part of neck, $\frac{3}{4}$ inch to 1 inch from head, extends down for $2\frac{1}{4}$ inches, as indicated on outer surface of shaft, where it unites with dense wall of medullary canal. This clearly establishes that there had been fracture accompanying the sub-coracoid dislocation, the fracture splitting off the greater tuberosity and a long splinter of the shaft. The anatomical neck, internal to the fracture, had then in the course of time become elongated in adaptation to the movements on the inter-glenoid ridge and the new glenoid cavity.

[In the 1862 specimen, above referred to, the abnormal divergence of the tuberosity is less, but is very marked, begins about $1\frac{1}{4}$ inch from the summit of the tuberosity, and at that locality there is a jagged line towards the outside and behind as if this portion had been broken off with the tuberosity and united; but this indication is not nearly so distinct as in the new specimen. The post-cervical excavation is even wider and deeper. The description above given of the altered form of the head and of the two glenoid cavities might serve for both specimens, except that in the 1862 specimen the new glenoid cavity does not reach up on the coracoid, its upper end being $\frac{1}{2}$ inch lower than the upper end of the old glenoid cavity. The neck of the humerus, though greatly elongated, femur-like, is not so oblique as in the new specimen, so that top of the great tuberosity is not much below level of top of head. The long tendon of the biceps was normal.]

The parts show further results of chronic *rheumatoid arthritis:* various separate ossifications projecting into the joint from the capsular ligament or in the ligament. (*a.*) At inner and lower part of cavity, two, one size of small almond, one size of pea, hanging into the joint from the capsule near inner edge of new glenoid cavity. (*b.*) From upper part of capsule, two, size of pea. (*c.*) At bottom of post-cervical excavation, attached by fibrous tissue, one, larger than pea. (*d.*) At front of excavation, in the capsular ligament, two, a large one, 1 inch by $\frac{1}{4}$ inch, and one larger than pea. Many tufts and fibrous laminæ hang into the joint at where the capsular ligament is attached. The rheumatoid changes have not extended upwards towards the acromion, not above the old glenoid cavity. The attachment of the *biceps tendon* has been transferred to the humerus, firmly attached below the normally placed lesser tuberosity. The tendon is now about half the normal bulk and not tubular. (See my note on this condition of the transplanted tendon in *this Journal*, vol. i., 1856, p. 953.) A vestige of the upper part of the tendon is seen partly incorporated with the capsule.

Movements and adaptations. The movements of the shoulder joint permitted by the ligaments are, flexion and extension pretty free, abduction and adduction very moderate; not rotation, being prevented by the ligaments and by the elongated form of the neck. When the parts at the joint are placed in their acquired adaptation and the scapula held naturally, the shaft of the humerus is directed very much outwards. When the humerus is placed naturally, with only a little outward direction, the base of the scapula slopes very much outwards and upwards. It would seem that this oblique position of the scapula must have been acquired as an adaptation to the movements of the shoulder joint after the dislocation. The new adaptations at the shoulder joint may be stated generally as, that the back of the head rests in the new glenoid cavity, retained there by the subscapularis muscle and the untorn capsule; that the great tuberosity rests by its inner wall in the old glenoid cavity; and that the projecting inter-glenoid ridge sinks into the post-cervical excavation and forms a kind of pivot on which the two prominences move in their respective sockets.

Altered form and proportions of the upper end of the humerus. The increase in the length of the neck is seen by the following measurements:—Total length from outer wall of great tuberosity to middle of end of head, $2\frac{5}{8}$ inches. (The same measurement in a normal muscular humerus, 2 inches.) The $2\frac{5}{8}$ inches are apportioned thus: head with broadening externally, carrying the lesser tuberosity, $1\frac{1}{8}$ inch; post-cervical excavation, at bottom, $\frac{7}{8}$ inch; great tuberosity at same level, $\frac{5}{8}$ inch. The neck is very oblique as well as elongated, so that the great tuberosity is considerably below the level of the head, to the extent of $1\frac{1}{4}$ inch in the natural adaptation, with the shaft of the humerus inclined outwards; to the extent of $1\frac{1}{2}$ inch when the humerus is held vertically. (In the normal humerus, about $\frac{1}{4}$ inch.)

The fracture which appears to have accompanied the dislocation has been at the outer side of the part of the anatomical neck opposite the great tuberosity, and thence carried down so as to detach the great tuberosity with a splinter of the shaft below it.

(*b.*) It is a question fo interest whether the post-cervical excavation, or groove, often seen in specimens of old unreduced sub-coracoid dislocation, is brought about in the course of time by the pressure of the inter-glenoid ridge in adaptation to the new position of the parts, or has had its beginning in an indentation or fracture caused by the impinging of the prominent inner glenoid margin against the humerus at the time of the dislocation. Various writings bearing on this question may be referred to.[1]

Dr Joseph Bell points out the exact relation of the humerus to the scapula in the sub-coracoid and sub-glenoid dislocations, in the usual cases of moderate dislocation in which only the front of the capsule is torn, and the capsular muscles not torn but stretched so as to retain the humerus in its dislocated position. That, in the sub-coracoid form, the projecting anterior glenoid border is received into the part of the anatomical neck behind the greater tuberosity, which he terms "the posterior groove of the humerus"; and that, in the sub-glenoid form, the projecting posterior ridge of the axillary border, in like manner, projects into and may be retained in the groove of the humerus. He further explains that this catching of the glenoid margin in the posterior groove of the humerus may go the length of producing "consecutive fissure of the head of the humerus," separating the greater tuberosity, caused "by the sharp edge of the glenoid border being forced as a wedge against the posterior groove of the humerus."

In the case related by *Mr Eve*,—that of a man, æt. 36, knocked down by a train while working on the line, the head of the bone distinctly felt beneath the coracoid process and the dislocation easily reduced, death twelve hours after the accident,—"on the posterior surface of the head of the humerus, at the margin of the articular cartilage, there was a deep vertical indentation or groove, into which the anterior margin of the glenoid cavity accurately fitted;" and he remarks—"I conclude that the groove was produced by the forcible impact of the humerus against the anterior margin of the glenoid cavity."

In this interesting paper Mr Eve says—"There are two dried specimens of shoulder joints in the museum at St Bartholomew's Hospital, showing dislocation of the humerus forwards with the formation of a groove or trochlear surface on the posterior portion of the head, evidently produced by attrition against the anterior margin of the glenoid cavity, which has itself been considerably worn away. Malgaigne (*Fractures et Luxations*, p. 496) has noticed the occasional occurrence of grooves on the head of the humerus after dislocation. He mentions two cases described by Sédillot, which presented much the same appearances as the above. In these specimens, as in the two former, the furrows were hollowed out by the movements of the head upon the glenoid margin, but Malgaigne remarks (p. 497) that he thinks it is a question if they are not sometimes produced, 'at the moment of dislocation, by the crushing of the head of the humerus upon the border of the glenoid cavity,' a conjecture which is proved correct by the case related. It is also probable that the commencement of the groove might, in some of the specimens mentioned, have been formed in a similar manner."

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[1] *Sir William H. Flower*—"On the Pathological Changes produced in the Shoulder Joint by Traumatic Dislocation, as derived from an Examination of all the Specimens illustrating this Injury in the Museums of London," *Trans. Path. Soc. London*, 1861. *Dr Joseph Bell*—"On the Nomenclature of Scapulo-Humeral Dislocations," *Edin. Med. Journal*, May 1863. *Mr Frederick S. Eve*—"A Case of Sub-coracoid Dislocation of the Humerus, with the formation of an Indentation on the posterior surface of the Head, the joint being unopened; with Remarks on the Mode of Production of Fracture of the Anatomical Neck, with Dislocation," *Med. Chir. Trans. London*, March 1880. *Professor E. H. Bennett*, of Dublin, *Brit. Med. Journal*, August 1880, p. 349—"On Fracture of the Neck of the Humerus, as a complication of Dislocation of the Shoulder." *Mr Francis M. Caird*—"The Shoulder Joint in relation to certain Dislocations and Fractures," *Edin. Med. Journal*, Nov. 1886.

Mr Eve goes on to suggest that the occurrence of such a groove "may explain the mode of production of fracture of the anatomical neck with dislocation of the head of the humerus forwards. If the blow had been sufficiently forcible the head of the humerus would probably have been chipped off by the anterior margin of the glenoid cavity, instead of simply an indentation being produced by it." The specimen is in St Bartholomew's Hospital Museum; Cat., vol. i., p. 146, No. 1019.

Prof. Bennett "exhibited five examples of dislocation of the shoulder, complicated by fracture of the upper extremity of the humerus. In one of these, the dislocation was recent and the fracture incomplete; in the remaining, the fractures were completely united." Having reviewed the opinions of Delpech, Cooper, Malgaigne, Smith, and, lastly, of Mr Eve, on the mechanism of the double lesion, the author advanced his views, founded on the examination of the series of recorded cases and on the specimens exhibited, and expressed them in the following conclusions:—"1. Fracture of the upper extremity of the humerus occurring as a complication of the dislocation commences at that part of the anatomical neck which rests, after dislocation has taken place, against the border of the glenoid cavity. 2. It is caused by pressure of the humerus against the sharp edge of the glenoid cavity, probably the result of a constrained position, preventing the separation of the elbow from the side as in ordinary dislocations. 3. While the fracture starts at the anatomical neck, and may follow it strictly, it commonly passes into the shaft detaching the lesser tuberosity with the head. 4. The fracture is neither comminuted nor impacted." In the *Dublin Medical Journal* of March 1884, p. 359, Prof. Bennett notices a specimen of Fracture of upper extremity of Humerus, history unknown, which had in his opinion been consecutive to dislocation; agreeing with his former specimens and confirming his opinion. The head united by ligaments to both scapula and humerus.

Mr Caird describes and figures two specimens of sub-coracoid dislocation in the museum of Edinburgh University. In one of these, a recent dislocation, there is an indented fracture, beginning at the upper and back part of the anatomical neck, forming a groove $\frac{1}{4}$ inch deep, $\frac{1}{2}$ inch broad, and $1\frac{1}{2}$ inches long, into which "the anterior lip of the glenoid cavity accurately fits." In the other, a dried specimen, the indentation is in the *head* of the humerus, 1 inch long, $\frac{1}{2}$ inch deep, and the indentation "evidently corresponds to the anterior edge of the glenoid."

Mr Caird finds that "We can produce, although with some difficulty, and in a very artificial manner, a similar injury on the cadaver. Make a sub-coracoid dislocation, lay the subject prone, and strike the scapula violently. It will be found that a series of lesions may be obtained, varying in degree from a mere bruise of the glenoid cartilage onwards to indentation of the head of the humerus or to complete intracapsular fracture, the anterior lip of the glenoid, hard and dense, cutting into the cancellated tissue of the humerus like a knife." Reviewing the cases and opinions of the authors above quoted, he expresses the opinion—"It would appear, therefore, that we are justified in recognising the true type of sub-coracoid dislocation as being *always* associated with an indentation fracture of the head of the humerus caused by the dense, hard, anterior lip of the glenoid."

Sir William Flower's paper (*loc. cit.*) is of great value from the large number of facts he records and from the conclusions founded upon them. He fully recognises, writing in 1861, the misinterpretation of Adams in considering the rheumatoid condition to precede instead of being consequent on the dislocation. He brings out the striking fact that, of the 41 specimens of traumatic dislocation noted by him in the London museums, the position is *sub-coracoid* in 32—"placed upon the anterior margin of the glenoid fossa, or neck of the scapula, *immediately beneath* the coracoid process." The dislocation was backwards in four. In one (No. 11) the position had been described as "sub-clavicular," but the dislocation was recent and the head of the humerus had been removed from that position in putting up the preparation. In several other specimens described in the catalogues as of that kind, "the new socket is distinctly seen in the preparation to be immediately below the coracoid process. So that there is no specimen really illustrating the "sub-clavicular" variety, as defined by Sir A. Cooper ('the head of the os humeri placed below the middle of the clavicle, and on the sternal side of the coracoid process'), which is said by some authors to be second in order of frequency." In two of the specimens (Nos. 6 and 38) the position was "sub-glenoid"; as compared with the sub-coracoid, "somewhat lower down, the new socket being formed partly at the expense of the lower and anterior portion of the glenoid fossa, and partly on the anterior edge of the inferior costa of the scapula, the upper part of the head of the humerus being at a distance of somewhat less than an inch below the coracoid process. In one specimen (No. 23), the position is intermediate between this and the first mentioned (sub-coracoid) form. In no case is the head of the humerus placed entirely below the glenoid cavity."

As bearing on the great *preponderance of the sub-coracoid position* in museum specimens, Mr Caird (*loc. cit.*) remarks—"From the fact that our museums contain many examples of dislocation forwards, we are apt to imagine that the downward displacement is much rarer. One must remember, however, that this may mean no more than a relative difficulty in reduction. Of nine *recent* cases admitted lately to the Royal Infirmary, only one was sub-coracoid, eight were clearly sub-glenoid." On the other hand, Sir William Flower says, in regard to the sub-coracoid preponderance and in regard to the theory that the head of the humerus in neglected sub-glenoid dislocations passes up to the sub-coracoid position—"As the great frequency of sub-coracoid dislocation observed in this series does not accord with the descriptions of this injury generally given in the standard surgical works of this country, and might lead to the supposition, that in these examples of neglected dislocation, the head of the humerus had in the process of time assumed a position which did not at first belong to it, I should mention, that in upwards of fifty cases recently observed in living patients, in a very large majority it could be distinctly felt immediately below the coracoid process, and that this has already been recognised as the typical position by most surgeons of the modern French school." These two statistical statements are not reconcilable. A more extended statistic is required. If Mr Caird is right, we are led to the conclusion either that sub-coracoid dislocations are frequently overlooked, which is not very probable, or that they are often accompanied by fracture of the humerus, rendering reduction difficult or impossible.

In regard to the occurrence of a *post-cervical groove* on the humerus, and its condition, in the 32 specimens of sub-coracoid dislocation tabulated by Sir W. Flower, the following appears:—Described as "grooved," 7; as "slightly grooved," 4; as "deeply grooved," 5; the groove generally at or near the outer side between head and great tuberosity. In two of "recent" dislocation, head of humerus "unchanged," but in one of them part of great tuberosity torn off. In two "rather recent," one "apparently unchanged"; the other "slightly grooved between head and great tuberosity." Two showed fracture at the anatomical neck, one of them with fibrous union, the other with false joint. One "apparently unchanged." The others variously altered in shape, but not described as grooved. Thus, in about half of the specimens of sub-coracoid dislocation noted by Sir W. Flower, the humerus showed the groove in various degrees. As the size of the groove is not given, it does not appear whether it amounted to the wide and deep excavation seen in my two specimens.

In regard to the *position of the new glenoid cavity* the distinction is made between the *sub-coracoid* proper and the *intra-coracoid* of Malgaigne (not "sub-clavicular"), in that in the latter the new cavity is quite internal to the old cavity, without grooving of the humerus ; while in the former the new cavity encroaches on the old cavity, with grooving of the humerus. The distinction is but one of degree. According to that distinction the dislocation in my two specimens would be rather intra-coracoid, as the new cavity encroaches very little on the old one ; but the position is strictly sub-coracoid in both. This may be co-related to the great width of the post-cervical excavation in them, with consequent elongation of the neck, enabling the head to play in the new cavity and the tuberosity to play against the old cavity.

In regard to the *causation of the post-cervical groove or excavation*, it is a question whether it is the result of gradual adaptation, the glenoid edge resting originally in the natural groove presented by the part of the anatomical neck at the great tuberosity and working a deeper groove in the course of time. Supposing that to be the position of parts at the dislocation, and so retained by the capsular muscles, there need be no difficulty in receiving that view of the formation of a deeper and broader groove in the humerus. More probably there is, to begin with, an indentation or partial fracture at or near the anatomical neck, caused by the impact of the glenoid edge. In at least one of my two specimens (case No. 1) there had evidently been a fracture, splitting off the greater tuberosity with a splinter of the shaft ; bony union had taken place, and the great elongation of the neck must have been a gradual process in adaptation to the movement on the prominent inter-glenoid ridge.

(*c*.) *Note on the normal neck of the humerus.* The part loosely, though conveniently in surgery, called the "surgical neck," is not definable except generally as about the upper inch or so of the shaft, where it enlarges towards the head and tuberosities, as seen on all sides. In diastasis the line of fracture is quite at the upper part of the surgical neck, as the line of the epiphysis, transverse with minor undulations, cuts off exactly the articular head and the tuberosities. But most of the so-called surgical neck belongs on the inner side to the anatomical neck, or neck proper of the humerus. The "anatomical neck" appears to be understood by some as if passing round on all sides just beyond the articular head. At the tuberosities it is a well-marked furrow, ⅙ to ¼ inch in breadth, but below the inner half of the head the bone slants uniformly towards the shaft for about ¾ inch, without any definite limit below, or any above except the edge of the cartilage, or, in the macerated bone, the articular lamina. The length and obliquity of the neck may be observed equally in front and back views. Seen in front, the axis of the shaft runs up at the outer edge of the lesser tuberosity ; the axis of the neck intersects the middle of the lesser tuberosity, and runs out below the greater tuberosity about 1½ inches from its summit. Seen behind, the axis of the shaft runs up a little internal to the great tuberosity ; the axis of the neck passes at the lower edge of the great tuberosity. A considerably obtuse angle is formed below where the axes of the shaft and neck meet. The direction of the neck is inwards, upwards, and backwards ; the backward direction best seen on viewing the bone from the outer side.

In dissection, it is seen that most of the neck is within the capsule. At the tuberosities the capsular tendons, there representing the capsular ligament, are attached to the smooth facets of the tuberosities, encroaching a little inwards at the outer side of the anatomical neck, but the narrow anatomical neck is seen free and covered by synovial membrane. Below the head, the capsular ligament is attached from ¼ to ½ inch from the articular edge, leaving that extent of periosteal bone within the capsule and covered by synovial membrane.

It may here be observed, in regard to possible impact against the glenoid edge, that, in manipulating with a normal unopened capsule, it does not appear possible to bring the posterior part of the anatomical neck against the anterior glenoid edge by any movement or position without rupture of the front of the capsule. By extreme rotation inwards the fore part of the anatomical neck may be brought in relation with the anterior glenoid edge ;

by extreme rotation outwards the back of the anatomical neck may be brought in relation with the no less projecting posterior glenoid edge. By gliding movement forwards or backwards, without or with rotation, the articular surface of the head may be brought against the anterior or the posterior glenoid edge and might be indented or fissured vertically; by downward gliding the articular surface may be brought against the lower end of the glenoid margin, and thus produce a transverse fissure. All without any tearing of the capsular ligament.

In regard to the sub-glenoid position the following may be noted. The sub-glenoid or axillary groove, extending along about the upper half of the axillary border, is at the upper part ½ inch in breadth and faces obliquely forwards. Here, its outer border, the upper part of the true axillary border, is prominent and rough, where it attaches the long head of the triceps, and this ridge might catch in the back of the anatomical neck in a sub-glenoid dislocation. The beam forming the inner boundary of the groove, stronger below than the outer boundary, falls at about an inch from the glenoid cavity, and thus leaves a vertically concave area where the back of the head of the humerus may rest in a sub-glenoid dislocation.

The specimens described in this paper were shown and considered anatomically at the Anatomical Society of Great Britain and Ireland, in London, in Nov. 1887, and shown and considered surgically at the Edinburgh Medico-Chirurgical Society in June 1894.

II.—ATYPICAL CASES OF APPENDICITIS, WITH A DISCUSSION OF SYMPTOMATIC PAROTIDITIS.

By W. Ramsay Smith, M.B. C.M., B.Sc. Edin., Physician to the Adelaide Infirmary, South Australia; late Demonstrator of Anatomy, Edinburgh School of Medicine, and Examiner for the Royal College of Physicians, Edinburgh.

We are far from hearing the last word on appendicitis. The subject, if not the disease, is in the air on both sides of the Atlantic; and while surgeon and physician continue to debate the treatment, each pressing the claims of his cult and craft, one needs make no apology for calling attention to some cases that illustrate the difficulties incident to the subject of medical *versus* or *plus* surgical treatment. Moreover, every atypical case adds something to our knowledge of the disease, and has to be taken into account in framing rules for treatment, and, if followed by a post-mortem examination, ought to add considerably to our knowledge of the causes, history, and progress of a disease whose diagnosis is sometimes hard, and whose course and prognosis may be excessively difficult. My experience of appendicitis has not been wide, but it has certainly been peculiar, and, in some instances, presumably unique. In this communication I shall confine my remarks to two recent cases that occurred in my practice, each presenting well-marked characters that cannot be said to be at all common in connexion with the disease as it is usually seen.

Case I.[1]—A man, aged 26, came under my care on the 4th of

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[1] For the history of this case I am indebted to my friend Dr J. Stewart Norwell, who took great interest in the case, saw it often with me, and assisted me at the post-mortem examination.

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ave him a draught, which also relieved
ng pain returned in the same region with
was sent for. When I first saw him a
n applied to the abdomen. The abdomen
was distended and tympanitic. There was pain then on both sides low down, in the hypogastric and iliac regions. The temperature was raised from 2° to 3° F. Cold water compresses to the abdomen, with morphia and belladonna internally, gave perfect relief from pain, and the vomiting ceased. The temperature fell, and the pulse, though rather frequent, became more normal in character. His condition remained favourable till the twelfth day, when the pulse went up to over 130 per minute, and became soft and feeble; and the temperature rose to 101°–102° F. In the left iliac region, where pain had been at first felt, a distinct swelling, obviously the distended sigmoid flexure, could be noticed, which disappeared from time to time as flatus was passed. Death followed on August 18, the sixteenth day after the attack.

A post-mortem examination showed the following state of affairs:—The intestines were enormously distended with gas. The great omentum was wholly destitute of fat. On the left side there was inflammation of the gut, but no adhesion. On the right side, in the iliac fossa the bowels were extensively matted together, the lower coils of the ileum and the ascending colon, especially in the region of the cæcum, being firmly adherent, the adhesions being less marked towards the hepatic flexure. On separating the coils of bowel near the cæcum, an abscess was discovered containing a small quantity of greenish offensive pus. It lay quite close to the anterior abdominal wall and immediately above Poupart's ligament, the anterior wall of the cavity being formed by the anterior abdominal wall at this spot. The abscess had commenced to burrow forwards, and might have pointed in front close to Poupart's ligament. The appendix was adherent to the posterior wall of the abscess. It showed an ulcerated opening communicating with the abscess cavity. On drawing the cæcum upwards from the abdominal wall, an opening from the abscess pointing downwards and outwards into the peritoneal cavity was discovered.

The history of the case seems to have been this:—First, an appendicitis, followed by adhesion of the appendix to the abdominal wall; next, ulceration of the appendix and of the adhesions, resulting in a local peritonitis on the right side, and a peri-peritoneal abscess which became temporarily quiescent; finally, the bursting of this abscess into the peritoneal cavity, causing death.

Case II.—On November 6, 1895, I was called to see an unmarried lady, 67 years of age. She had been suffering excruciating abdominal pain for twenty-seven hours before I was summoned. The patient was stout rather than thin, and had suffered now and again from "pain and weakness" in the right iliac region, and from occipital headache. The whole abdomen was tender and painful, and slightly swollen and tympanitic. The bowels had moved about eight hours previously, and water was being passed freely. The temperature was about 2° F. above normal. Treatment: small doses of morphia and atropia hypodermically; hot applications to the abdomen. In an hour or two the pain was gone, but there was great tenderness in the right iliac fossa. Repetition of the hypodermic doses at intervals of a few hours, when pain threatened, kept the patient easy; a vaginal examination showed nothing abnormal in the pelvis; but the bowels did not move again, the bladder became paralysed, the kidneys ceased acting entirely for twenty-four hours, and the abdomen became tympanitic. Diagnosis: appendicitis, appendicular peritonitis, spreading to the bladder and, perhaps, to the right kidney, the left "sympathising." Small doses of pilocarpine restored the urinary functions; the bladder recovered, the temperature fell, the tympanitis disappeared, the bowels moved, and by the end of the first week the disease seemed to have resolved. But on November 17 the heart failed, and for a few days there was great trouble. On three occasions the pulse was quite gone, the patient became unconscious, and was brought round by artificial respiration and inhalation of ether. Then followed a term of quietness; but on November 27 parotiditis appeared on the right side, followed next day by a similar condition on the left side. The parotiditis was treated locally by anodyne fomentations, and for a time it seemed as if suppuration might not occur; but on December 7 I discovered, by the use of a large hypodermic needle, pus deeply seated. To reach this I made a skin incision, through a spot touched with carbolic acid, about an inch in front of the lobe of the ear, parallel to the line of Stenson's duct, and about three-eighths of an inch long. Then introducing a fine sinus forceps, I passed this on to the pus cavity and broke down sufficient tissue to allow drainage through the skin opening. Next day I performed a similar operation on the left side. In the course of three or four days I succeeded, on both sides, in making six or eight deep abscess cavities discharge by one opening. On December 15 I had to make another opening on the right side through the middle of the sterno-mastoid muscle, in order to prevent pus from burrowing down the neck. Meantime, on December 10, acute œdema of the lungs set in, and the patient became pulseless, and the death-rattle seemed to be in the throat. Hypodermic injection of strychnine and atropine dispelled this condition within twelve hours. During the time the pus was forming in the parotids, and while the abscesses were discharging, the abdomen began to grow tympanitic again, and although no thickening could be felt in the right iliac fossa, there was a distinct and visible rounded fulness in that region. Delirium in sleep, hiccough, and vomiting set in, the heart became weaker, and respiration failed, the patient dying on the morning of December 20, the forty-sixth day of illness.

I made a post-mortem examination six hours after death. Through an incision in the right iliac region the lower part of the ascending colon presented. There were no signs of general peritonitis. Upwards and to the left there were no adhesions, but on passing the hand downwards it encountered slight adhesions over and around the cæcum, which had a mesentery. When these were broken down there welled up a quantity of putrid pus. About a pint of this was removed. The abscess cavity extended behind, below, and to the left of the cæcum. I passed ligatures round the ascending colon and the small intestine, and removed the cæcum and adjacent parts by tearing the mesentery with my fingers. The total amount of pus in the abdominal cavity was above two pints. There were slight adhesions to the uterus and bladder, otherwise the pelvis was normal. After removing a large quantity of fat from the cæcum and ileum, the condition of affairs was seen to be as follows:—The cæcum contained only a small quantity of viscid material; its walls were not thickened, nor was there any sign of inflammation. At the part where the appendix arises there was a perforation, and at a little distance from the margin there remained attached a strip of the appendix. This ribbon-like strip was deeply congested, the bloodvessel running along its whole length being very distinct and much enlarged. On the posterior aspect of the cæcum, just at the point of entrance of the ileum and at the lower angle, there was a perforation a quarter of an inch in diameter, the mucous membrane internally at this point being raised and showing a double perforation. Further, midway between this and the opening of the appendix was another perforation a quarter of an inch in diameter, corresponding to a deep crypt of the cæcum, the mucous membrane here again being separated from the muscular coat, and showing one large and two small perforations.

Commentary.

The medical treatment of these two cases, as partly outlined above, is what I usually follow with undeviating persistence,—viz., morphine and atropine by the mouth or hypodermically, just sufficient to allay pain; ice to suck if the vomiting is bad; hot or cold applications to the abdomen, according to the taste of the patient; food by the mouth, if it can be tolerated, in the shape of malted milk, and raw meat juice freshly made at home; and nutrient enemata. Nurses accustomed to these cases have little difficulty in keeping the patients well fed. For heart failure, strychnine, and if there is no feverishness, arsenic in addition, especially when there is "cardiac pain," alternated with carbonate of ammonia with small doses of morphia. In cases of "weak heart," *i.e.*, weakness of the heart muscle, I have always found digitalis and its allies positively harmful.

The question of real difficulty in most cases of appendicitis is, to operate or not. In my first case Dr Norwell and I were dealing with a patient in whom all the symptoms and physical signs were on the wrong side of the body, and the diagnosis therefore contained a considerable element of doubt. By a process of exclusion we were able to say "probably appendicitis, but possibly tubercular peritonitis," since the whole facies of the patient bespoke tuberculosis. In fact, in this case operation was almost out of the question, since the patient's general condition, even before his illness, precluded all hope of ultimate recovery. Referred pain is common; but a whole aggregate of referred symptoms, though not unknown, is far from common; and one might well hesitate to recommend or even allow an operation in such a case as the first.

In the second case, after the first few days there were no indications for operation, unless one is prepared to operate in every case where the diagnosis is clear. Had one foreseen the possibility of such a train of complications as followed, one might say "operate." But in the circumstances—a patient, 67 years old, with naturally weak heart, suffering from local peritonitis that is resolving,—will any one recommend operation because the patient may yet develop a complication that has never yet been found associated with this disease—nay, such a complication as, added to the circumstances of the patient's age and sex, would, in discussing the advisability of a late operation, make many a one wait the exhibition of the appendix before listening to the diagnosis of appendicitis? And so, although an early operation within the first few hours (*i.e.*, before the patient was seen) might have saved the patient's life, an operation (performed after the third day, when the condition was resolving) would have most undoubtedly been pernicious practice, being founded on bad principles, or none at all.

Symptomatic Parotiditis.[1]

But the second case demands still more consideration on account of the occurrence of parotiditis. I have little doubt that, if this had not developed, the patient would have recovered, for, to my mind, the abdominal abscess was consequent on the development of the parotid abscesses. The history of the case points to this.

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[1] As regards nomenclature, the ancients called all inflammation of the parotid gland *parotis*, the moderns call it *parotitis*. Trousseau uses the term *parotiditis* (etymologically more correct than parotitis) for suppurative swellings of the parotid, *i.e.*, for the condition usually termed symptomatic parotitis. Mumps is usually termed, in modern writings, Cynanche parotidea.

I have failed to find a record of parotiditis complicating appendicitis. Dr Herbert Hawkins, in a personal communication, says he has not met a case of parotid bubo in association with certain appendicitis and peritonitis, and he does not think such a case has been recorded.

Now, parotiditis is in itself an interesting subject, and one regarding which a good deal has yet to be learned. Copland[1] described inflammation of the parotid glands under the heads:—1*st*, *Simple* or *common inflammation* occurring (*a*) *primarily* or independently of pre-existing disease, and (*b*) consecutively, or following eruptive fevers and affections of the mouth and throat, in both which states it usually presents an acute character; 2*nd*, *Scrofulous inflammation* of the parotids, or parotitis affecting the strumous diathesis, and usually assuming a chronic or indolent form; 3*rd*, *Epidemic parotitis*, or that proceeding from a *specific* cause, and presenting a *specific* or distinct and regular course. Indeed, it is doubtful whether this last should be arranged as a local inflammation, or rather as a specific form of fever caused by infection, and characterised by congestion and engorgement of the salivary glands, and a tendency to metastasis to the testicles, and thence to the brain."

Copland notes that suppuration is more frequent in the simple consecutive and in the scrofulous states than in the epidermic.

Trousseau[2] draws a sharp distinction between *mumps* and *parotiditis*. He says:—"Parotiditis and mumps, even looking at the anatomical lesion only, are essentially different from one another. Parotiditis is an inflammation of the gland and of its cellular tissue; it supervenes during or after fevers, is susceptible of passing, and often does pass into suppuration. But mumps is, properly speaking, only a simple engorgement (*simple fluxion*) of the gland. This engorgement, as was correctly pointed out by our predecessors, is much more an affection of the interglandular cellular tissue than of the gland itself, and (unlike parotiditis) never terminates in suppuration. Moreover, while parotiditis occurs generally on one side only, both sides are almost invariably affected in mumps, though one is often more affected than the other."

Graves[3] did not draw such a fast line, for after detailing some cases of parotid swellings he goes on to say:—"The facts just stated are, I think, conclusive in proving that the tumours hitherto supposed to arise from inflammation of the parotid or submaxillary gland, and which in fever sometimes forbode death, and are sometimes the precursors of returning health, are not owing to an affection confined in its action to these glands; but, on the contrary, the inflammation and its consequent tumefaction are seated in the areolar membrane of all the neighbouring parts; so that the bulk of the tumour is sometimes altogether, and generally for the greatest part made up independently of disease of these glands. It would be rash to extend this conclusion to the mumps—cynanche parot idea,—but I may be permitted to remark that I am far from being satisfied that the seat of the tumours so-called has not been assumed without sufficient grounds. Indeed, this disease so rarely, if ever, proves fatal while the swellings persist, that I do not know of any post-mortem examination of the tumours of mumps on record. Our only guide, therefore, is analogy; and when we recollect that our swellings agree with mumps, not only in general appearance and situation, but also in the sudden manner in which they rise, and, according to the testimony of authors, in the sudden manner in which they occasionally disappear; when we recollect also that like mumps they show a decided tendency to be epidemic, we cannot avoid conceding that the points of resemblance are strong, the more so that in both diseases the disappearance of the tumour is always dangerous."

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[1] *Medical Dictionary*, vol. iii., pt. i., p. 53.

[2] *Clinical Medicine*, vol. ii. p. 275.

[3] *Ibid.*, 2nd ed., vol. i. p. 195.

It thus appears that authors are divided regarding the relation of mumps to parotiditis,—Trousseau looking upon the two conditions as quite different, while Graves inclines to think they are clearly allied.

As regards the occurrence of parotiditis, Trousseau[1] notes that it occurs as a complication of evil import in dysentery, and as a very evil-boding complication in typhoid.[2] Copland[3] mentions that it occurs after scarlet fever and other exanthematous fevers. Fagge[4] had a case in which it occurred as a complication of cancer of the sigmoid flexure. Roberts[5] enumerates the diseases during which it may occur—typhus fever, small-pox, measles, scarlet fever, cholera, pneumonia. In connexion with a statement he makes that "sometimes it arises by *direct extension*, as when it follows erysipelas of the face," it is well to note that Copland[6] records two cases where the nurses attending persons affected with erysipelas of the face and scalp developed mumps. I believe the case I have now reported is the first recorded in which parotiditis has occurred as a complication of appendicitis.

In this case the changes on both sides were similar. The outline of the gland, contrary to what is stated by Ringer,[7] was well marked, the upper parts of the parotid and the whole of the *socia*

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[1] *Clinical Medicine*, vol. iv. p. 173 (New Syd. Soc.)
[2] *Ibid.*, vol. ii. p. 363.
[3] *Medical Dictionary*, vol. iii., pt. i. p., 52.
[4] *Principles and Practice of Medicine*, 2nd ed., vol. ii. p. 304.
[5] *Theory and Practice of Medicine*, 5th ed., p. 312.
[6] *Medical Dictionary*, vol. iii., pt. i., p. 51.
[7] Reynold's *System of Medicine*, vol. i. p. 231.

parotidis standing out so prominently that I could almost pass my finger under their margin. The lower part of the gland at first was distinct, but afterwards became incorporated with the other inflamed glands and cellular and muscular tissue in the neighbourhood. It was four or five days before all the abscesses communicated with each other and with the external opening, and in the meantime an opening had been established through the external auditory meatus. The ramifications of the abscess cavity were very great,—a probe could be passed from the external opening 2½ inches deep into the pterygoid region among the bloodvessels, and down beneath the sterno-mastoid muscle to the middle of the neck. The amount of pus discharged from each abscess cavity in twenty-four hours was about 1½ oz., and large masses of the fibrous network of the gland were at times removed through the opening. The account of the pathological condition given by Virchow seems most applicable to the case: congestion of the gland, pus invading the lobules, which soften and break down, destroying more or less (in this case completely) the gland tissue as well as the interstitial tissue.

Now what is the relation of mumps (epidemic parotitis or cynanche parotidea) to parotiditis (*i.e.*, suppurative or symptomatic parotiditis)? Hippocrates' description of *parotis* is classical, and has been universally acknowledged to be an accurate account of epidemicparotiditis or mumps. But whether Hippocrates recognised a suppurative parotitis (the parotiditis of Trousseau) is a question that has not been raised. It appears to me that he did; for, speaking of the seasonal diseases of the island of Thasus, he says, in his description of mumps—"Swellings appeared about the ears, in many on either side, and in the greatest number on both sides, being unaccompanied by fever so as not to confine the patient to bed. In all cases they disappeared without giving trouble, neither did any of them come to suppuration, as is common in swellings from other causes."[1] Now, it seems to me from this passage that Hippocates is contrasting the epidemic swellings with swellings occurring from other causes, which commonly go on to suppuration. And this is rendered more probable from the way in which Paulus Ægineta speaks of *parotis* in general, assuming as well known the two varieties—"Parotis is an affection of the glands about the ears, being sometimes occasioned by humors from the head which are impacted in it, and sometimes by those collected from the rest of the body during the crisis of a fever;"[2] and he goes on to treat of the management of suppuration. Celsus also, before him, in speaking of the treatment of parotid swelling, says that if the gland swell without any other disease, an attempt should be made to induce resolution; but if the system be diseased, then the swelling is to be brought to a suppuration and opened as soon as possible.

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[1] *Of the Epidemics*, sect. 1, part i.

[2] Book iii., sect. 23.

To the ancients, then, *parotis* was one disease, of which there were two varieties, a non-suppurative or simple, and a suppurative depending upon a diseased condition of the system. I venture to think that there is more truth in this view than in the view of a specific disease—mumps, different from and having no affinity with symptomatic parotiditis. In the case I have related, which I studied most carefully, the history clinically was the clinical history of mumps, in every detail, beginning with the right parotid and submaxillary and neighbouring glands and tissues, going on to the left, and running a course absolutely indistinguishable from mumps until suppuration took place. Not only so, but there was a possibility that the patient had been exposed to infection; and a girl who came in contact with one of the nurses attending the case developed double parotid swelling; the times in both cases being in accordance with the recognised incubation period of mumps. Graves' cases of parotiditis show infection or epidemic incidence. Copland's instances quoted above (page 119) are much to the point, as is also another statement he makes that the accumulation of morbid secretions or of fæcal matters in the *prima via*, evidently favours or predisposes to an attack of the complaint—mumps.

So, then, we reach this conclusion, that mumps, which may be, and possibly is, a specific infective disease, usually runs a simple non-suppurative course, but that under certain bodily conditions, particularly when the system is suffering from the effects of infective fevers or a morbid and depraved condition of the blood, it takes on an additional virulence and sets up a suppurative process in the glands.

Modern pathology is in favour of this view. Virchow has been already quoted. Ziegler[1] says:—"Mumps, or epidemic parotitis, is an infective inflammatory swelling of the parotid gland. The submaxillary and sublingual glands may be affected at the same time. The glands and the overlying tissues are much enlarged, and feel doughy to the touch.

"Similar swellings occur as secondary symptoms in connexion with certain infective disorders like typhoid, cholera, pyæmia, syphilis, diphtheria, etc.

"The swelling is due to inflammatory serous and cellular infiltration of the interalveolar fibrous tissue of the glands. It issues either in resolution, or in fibroid induration, or in suppuration and abscess. Sometimes gangrene supervenes."

There is here no line drawn between mumps and parotiditis; and if the pathological views in this country are to be judged from such works as *Coats' Pathology*, one cannot say that pathology gives any countenance to such a distinction as is made by Trousseau and other writers on clinical medicine. Coats says:—"Erysipelas and other phlegmonous inflammations of the skin are inflammations primarily of the lymphatics and of the serous spaces which form the radicles of the lymphatics. . . . The phlegmonous inflammation of the parotid which occasionally occurs in cases of septic wounds is probably of a similar nature. Epidemic parotitis (mumps) may perhaps be placed in the same category."

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[1] *Pathological Anatomy*, vol. x., sect. 447.

Statements regarding the prognosis of parotiditis vary considerably. If the view I have here enunciated of the etiology of the condition be true, it follows that inflammation of the parotid gland superadded to a depraved condition of the blood must be in every case more or less grave; in many cases very serious, and in some cases a hopeless complication. For it always interferes considerably with feeding and with respiration, and the attendant pain wears out the nervous system. Add to this the possibility or probability of the abscesses becoming septic through communications with the external auditory meatus, or throat, or otherwise, and the consequent deleterious effect upon the nerve centres (my patient died from paralysis of respiration), and one can well subscribe to Trousseau's dictum—"I regard parotiditis as a very formidable complication; it is an affection from which I have almost never seen dothienenteric or other fever patients recover."

III.—THE INDIGESTION OF BREAST BABIES.

By James Carmichael, M.D., F.R.C.P., Physician to the Royal Edinburgh Hospital for Sick Children; University Lecturer on Disease in Children.

(*Read before the Edinburgh Obstetrical Society, June* 10, 1896.)

For many reasons less attention has been paid to the gastro-intestinal affections met with in breast babies than in those nursed artificially. Breast milk is the natural, and ought to be the sole food of the infant, under physiological conditions, during the first year of life. Unfortunately there is too often a departure from the normal state, and the child, and perhaps also the mother, may suffer during the lactating period. The natural pride and instinct of the mother is apt to lead to the presumption that all is going well with her and the infant, when, perhaps, in reality she is not a good nurse, and the child is suffering more or less, and not thriving. How often do we get an affirmative answer from the mother when we put the general question, "Have you plenty of milk?" It is the duty of the practitioner to take this reply only for what it is worth, and that is often very little. He must judge for himself, unprejudiced by any notion of the mother. The breasts should be carefully examined, and also the milk. The health of the mother and of the child as to its nutrition growth and development should be inquired into, in order to arrive at a correct opinion. Looking into the literature of the important subject to which I am to direct your attention for a short time, we find that until quite a recent date comparatively little has been written in a systematic and detailed manner on the simplest forms of indigestion met with in breast babies. On the other hand, the more serious and frequent form of gastric intestinal catarrh met with in substitute feeding is a subject which has been largely treated of by pediatricians.

In America the question of infant feeding in all its aspects has received the well-merited attention which it deserves, and which it has not met with in this country. The greater prevalence of diarrhœal disease during the tropical summer of the American continent has stimulated study and research on this important subject. Milk laboratories have been established in the larger cities, and the feeding of infants has been placed on a comparatively sure and scientific footing. Owing to the researches of such men as Jacobi, Morgan Rotch, Emmet Holt, Lewis Smith, Meigs, and others, we are now furnished with scientific data to guide us in the study of the subject. In this country the question of our milk supply is now receiving some attention from sanitarians, but we have as yet no ready means available to the general public of obtaining pure or properly sterilised milk on a large scale, nor of having milk analysed or tested in laboratories established for the purpose. I think the question of the establishment of such a laboratory in the city of Edinburgh is one well worthy of the attention of our sanitary authorities. We would then have a ready means of getting milk analysed at a small cost, and also be able to obtain "supplies" of standard milk and cream separated by the centrifugal process, which is the only one whereby it can be obtained in a fresh state. The cream used at present, as prepared in our dairies, after having been exposed to the air for from twelve to twenty-four hours in open flat dishes, is a dangerous commodity for feeding young infants, and even for family use. It is necessarily impregnated with micro-organisms, and therefore poisonous. Our sanitary authorities, in giving attention to milk, ought to supervise the cream supply as well.

In inquiring into the causes of indigestion in breast babies, we assume that, in a healthy child nursed by a healthy mother, it rarely, if ever, occurs. The conditions which lead to a departure from normal conditions, and which injuriously affect the child, are numerous. A certain group of causes which may affect both mother and child simultaneously I shall merely mention, without further comment. I refer to defective hygienic conditions generally, such as unhealthy, low-lying, and damp dwelling-houses, noxious effluvia from drains, or malarial poison. Under such circumstances both mother and child are apt to suffer, unless removed from the injurious influences. As it is to the mother specially that we have look when the child suffers, we find that any departure from normal health is apt to affect her milk supply.

General debility is perhaps one of the most frequent causes of inability to suckle. A large proportion of mothers in the present day are unable to nurse, or only to do so partially, from causes not always well ascertained in any given case. Multiparæ who were able to nurse the first baby are often less able to do so on subsequent occasions. Too frequent pregnancies are sometimes a fruitful cause of inability to nurse. The system becomes soon exhausted and the nerve-tone lowered, the appetite defective, and lactation fails. Many other causes are at work, and many of these lie deeply at the root of our social system. I cannot help thinking that in some respects the upbringing of girls in the present day is unfavourable to a healthy maternity. At most schools they are educated on the same lines as boys. The nerve-energy which should be conserved during the developmental period is exhausted by study, and when the time arrives at which the young woman is called upon to discharge her maternal functions, we meet with, during labour, uterine inertia and exhaustion, and subsequently defective milk supply. I think it is a duty incumbent on medical men to discountenance the present system of over-educating girls, which, although it may make clever women, unfits them for properly discharging their maternal duties, and therefore produces anything but healthy mothers. Poor women who are badly fed and overworked are often inefficient nurses. From a different class of causes women of the upper classes of society who lead a fashionable life, with all its dissipations and excesses, take little exercise, and live too high as regards feeding, never make good nurses. Mothers suffering from any disease of a chronic nature, whether organic or functional, may be unfit to nurse their babies. Thus gouty women who suffer from any of the irregular forms of this disease, such as gastric or hepatic derangement, are unable for lactation. Over-anxiety and mental worry are fruitful causes producing the same results. Phthisis or syphilis—certainly the former—is a contra-indication to lactation, and so we might enumerate many other morbid states which are likely to interfere with normal lactation. Suffice to say that ill-health in the mother, from whatever cause, whether functional or organic, is apt to prove a hindrance to suckling. Before leaving this part of the subject we must refer to the condition of galactorrhœa, the causation of which is not well ascertained, but must in some way or another be closely connected with the nervous system. From whatever cause, in this affection there is an over-excitability of the secreting functions of the milk glands, leading to a constant flow of watery milk, which is unsuitable and insufficient as a nutriment for the infant. Other causes of a local nature may be met with in the breast itself; thus mammary abscess often, but not always, interferes with the continuance of lactation. Malformed nipples are also a serious bar to nursing. Ulceration of the nipples is another and common cause.

Clinical Features of Indigestion.—Whenever the milk of the mother is defective in quantity or quality, the child is apt to suffer. It does not thrive or grow at the normal rate. Instead of being plump and firm and happy, it is soft and flabby, and is always crying, and never appears to be satisfied. Its skin is harsh and dry. The tongue is somewhat red, often slightly furred. Vomiting is not unfrequent from gastric catarrh. The stools are unnatural, and present various appearances depending on the quality of the milk. They are generally loose, and seldom have the natural mustard colour or consistency; but are usually pale, and often of an ashy gray colour, sometimes greenish, or mixed gray and green. The soft curd of the mother's milk is present undigested in little granular-looking masses. There is an excess of mucous secretion, sometimes little streaks of blood. As a rule, indigestion of mother's milk is more frequently intestinal than gastric, diarrhœa being more common than vomiting. This appears to be largely due to indigestion of the fatty and proteid elements of the milk. Infants, in regard to their digestive capabilities, are but little men and women, and it is certain they have their idiosyncrasies likewise. The milk of a mother seems to be suited to her own child under physiological conditions. It has been proved over and over again that a child which is thriving on its own mother's milk if put to another may suffer, even although the woman is healthy and her milk be found on analysis to be of good quality. This is one of Nature's mysteries which it is difficult to explain, but yet remains as a fact demonstrated by observation and experiment. It shows how subtle and delicate the nutritional relations are between mother and child. If this be so in natural feeding, it helps to explain the difficulties which we encounter when we come to rear the child artificially. Before referring to the indications for the management of disturbed lactation, I shall take as a text two clinical illustrations of indigestion in infants, from notes of many such cases.

Case I.—A girl baby; mother a multipara, who had nursed two other children during the normal period, consulted me about her baby three months old. This lady had always enjoyed good health, and I had not seen her since giving up attendance after her confinement, when lactation was going on satisfactorily. She stated that the child was not thriving so well, although she believed she had plenty of milk. It had frequent crying fits soon after taking the breast, and the stools had become too frequent and unnatural-looking. I found the baby did not look very ill, but it was irritable, and its limbs were wanting in firmness and plumpness. The motions, of which there were seven to eight in the twenty-four hours, were softer than normal and of a grayish colour, with a little undigested curd and some excess of mucus. The mother looked fairly well, and stated she felt in her usual health, although sometimes tired when she had a bad night with the baby. Her breasts were not quite so plump as they should be. It being the winter season, she stated she had been going out very little except for an occasional carriage drive; her appetite was good. She took three meals during the day and some supper at night, consisting of cocoa and milk, or warm milk and water, with bread and butter, and sometimes an egg. Her other meals—breakfast, luncheon, and dinner—consisted of the ordinary home diet, tea and eggs or fish to breakfast with bread, meat luncheon, and a dinner of five courses with claret. The milk was next examined. On being drawn off it had a rich appearance like cow's milk, with high sp. gr. 1034, and on standing for twelve hours there was a very thick cream. Judging by Holt's rule for roughly estimating the constituents of milk, it contained an excess of fat and proteids; an excess of fat alone with normal proteids would have lowered the sp. gr. I was now in a position to tell the mother what to do, and I first of all advised her that I was hopeful that a little change of diet and regimen would enable her to continue to nurse her baby, and my prognosis was justified by the result. Judging that she was living too high as regards the proportion of animal food in her diet, and taking too little exercise, I altered the conditions, and allowed her a plain breakfast without animal food, her usual luncheon, and a modified dinner in the evening,—no red meat, only fish or fowl, and only two courses. She was also ordered a walk from two to three miles every day when the weather permitted. The child was not otherwise treated. In the course of a week there was a marked improvement. The baby was more contented and the stools became more natural. She went on nursing till the sixth month, when the milk supply becoming somewhat deficient, a little substitute feeding was added, a bottle alternating with the breast during the day. All went well till the child was weaned at eleven months.

Case II. was of a somewhat different nature. The baby was four months old. I saw it in consultation with a medical practitioner in the country. The mother was healthy; the breasts and nipples were well formed. Her hygienic and dietetic habits were satisfactory. She was a woman of somewhat neurotic disposition, intensely sensitive and fond of her infant, and could not bear to hear it cry. The child was fairly well nourished and healthy-looking, but it had frequent crying fits and some diarrhœa. On examining the stools, they were badly formed, of a greenish colour, with a good deal of watery secretion; there was occasional vomiting. The child's tongue was red and irritable-looking, and the mother said it always wanted a drink, and nothing else would satisfy it. On inquiry I found it got the breast at irregular intervals, and whenever it cried. The milk was examined, but only ocularly, as I could not get sufficient quantity for careful testing, but I had little doubt, from the general symptoms and clinical features of the case, that it was one of irregular and too frequent suckling, producing concentrated milk, and I felt tolerably confident that a regulation of the periods of suckling would improve matters. I accordingly encouraged the mother by telling her she was over-anxious about nursing her baby, that she was only to give it the breast every two hours or two hours and a half, if possible, and on no account oftener. She was advised to give the child some sterilised water when it cried for a drink between the nursings. In this case the results were most satisfactory, and the mother was able to nurse her baby, I was told, for some time with good results.

These two cases are very ordinary ones, and typical of two of the conditions giving rise to indigestion in the infant. Irregular suckling is one of the commonest causes of indigestion in babies. It produces a milk too concentrated, which inevitably causes indigestion in the child. Regulation of the suckling is generally sufficient to give relief. Irregular suckling may be due to two principal causes. It may occur in cases where the milk is normal in quantity and quality, from bad habit on the part of the mother in being over-anxious about her child, and carelessly giving it the breast at irregular times or whenever it cries. The more frequent cause, however, is deficient quantity of milk. In this case the child is unsatisfied and gets the breast too frequently in consequence, with the result that the milk becomes too concentrated and causes indigestion. The remedy is the addition of some substitute feeding.

With regard to the management of indigestion generally, we must ascertain the cause, and look to the mother and her habits. We should carefully examine the breasts and the milk, and the evacuations of the child. In this way we are enabled to arrive at a conclusion as to the cause of the indigestion in the greater majority of cases. I have already alluded to the general health of the mother as affecting the milk supply. If there is any disease, functional or organic, of a persistent nature, the case must be considered in all its bearings, and a decision come to as to the possibility of continuing lactation with any prospect of success.

The occurrence of menstruation is one that requires careful consideration in regard to nursing. Analyses show that during the menstrual period the milk is deteriorated in quality, and gives rise to more or less disturbance, often of a trivial nature, in the child. On the cessation of the menstrual flow there is generally a return to normal conditions as regards the quality of the milk, so that menstruation in most cases is not a bar to nursing. It may come on a few months after lactation has commenced, and not recur for several months, so it is undesirable to wean the baby if it can be avoided on the occurrence of the first menstruation. It is a very different matter when *pregnancy* occurs. In this case it is necessary and desirable that the child should be weaned.

The diet and regimen of the mother during lactation is of the first importance. It must be borne in mind that the whole process is a physiological one, and that a healthy mother requires really no special treatment during the nursing period. She ought to take her usual food, a plain and mixed dietary, and have a due amount of open-air exercise. A good nurse generally has an excellent appetite and digestion, and is usually able and ought to eat a somewhat larger quantity of food than at other times, and probably a shorter interval between meals may be advisable. She should have a late meal, and in the early morning some soup, or a glass of milk or cocoa and a biscuit or bread and butter. It is desirable that a mother in good average health should fulfil the maternal duty of nursing her child if possible. Many mothers are too apt to seize the opportunity, if anything is wrong, to give up nursing, and in this they are often influenced by the father, who ought to be out of court in such matters. Medical practitioners are apt in many cases to give in to the wishes of the parents in this respect instead of encouraging the mother to nurse her child, and counselling patience and rational treatment with a view to improve the milk supply. I, therefore, conceive it is our duty to encourage mothers to nurse their children if there is no distinct contra-indication. Inquiry must be made into the habits and hygienic conditions under which the mother is living. The milk must be examined, and will not fail to give us valuable information. If it is deficient generally in quantity, we must endeavour to inspire hope in the mother that she may yet be able to nurse her child; and if her appetite and digestion are good, advise her to take an increased quantity of the lighter and more quickly digested nutriments, with plenty of liquid. If she has too much milk, the fluids must be reduced and the solids increased. Irregular suckling must be prohibited, as a common cause of indigestion in the infant. If chemical examination of the milk shows increase or diminution of the proteids, fat, or solids generally, we must prescribe accordingly. To increase the solids, give the child the breast more frequently, prevent the mother from over-exerting herself, and do not let her drink too much. To decrease the solids, order longer intervals between the nursings, more exercise, and a larger amount of fluid nutriment. Increase of fat indicates the need of less animal food in the dietary. Diminution of fat requires a larger quantity of animal food. The most certain way of regulating the amount of proteids is by muscular exercise, allowing plenty of exercise if the amount of proteids is too large, and decreasing the amount of exercise if they are deficient.

In conclusion, I would like to say that it seems to me more than ever necessary to impress on students and young practitioners the need and importance of the study of that part of preventive medicine which deals with the food supply, whether natural or artificial, of our infant population. Happily, greater facilities are now given for this in the longer period of study required for medical degrees. Inseparably connected with the question of maternal feeding is the no less important one of the artificial rearing of infants who are unable to obtain breast milk. The huge mortality of infants under one year is hardly reduced to a lower level than it was half a century ago, when in England and Wales no less than 76,328 children under twelve months died, out of a total of 350,101 deaths in one year. Want of breast milk and bad artificial feeding are largely responsible for this. Surely it is our duty, as a profession, to try and stem this tide of mortality. I know of no way to attain this end but by education—medical education; and let us hope that in the near future we will be in a better position in this respect, and have greater facilities for showing good results in what, it must be admitted, is an important branch of preventive medicine, too much neglected in this country.

IV.—CASE OF CONGENITAL TUMOUR ON THE FACE OF A CHILD.

By J. Rutherford Morison, F.R.C.S.

(With Reports by Mr J. H. Targett and Dr J. W. Ballantyne.)

(*Read before the Obstetrical Society of Edinburgh, 10th June* 1896.)

History of the Case, by Mr J. Rutherford Morison.

John R. C., aged 11 months, was born with the tumour, which has not increased out of proportion to his growth since birth. When he was two months old it began to bleed spontaneously, and he lost a good deal of blood. It has done so several times since, and he has occasionally lost a serious quantity of blood. Lately the bleedings have become less frequent and less severe. There has been an almost constant discharge, yellow in colour, and offensive in smell, which comes from the side of the tumour next the nose. The teeth connected with the tumour were cut with the first ordinary teeth when the child was eight months old.

Family History.—No previous deformity can be recalled on either father's or mother's side. On the mother's side there is a strong tubercular history.

At first sight the tumour looked like one of the large orbital sarcomata frequent in children, for looked at from the front it hid the right eye. The upper portion of it (light-coloured in the photograph) was covered with thick skin, the lower (dark in the photograph) with apparently normal mucous membrane. The growth looked as if it was coming out of an opening in the side of the nose, and had carried the skin of the nose forward in its upper part. The tumour was surrounded by a sulcus about half an inch deep, ending blindly. The outer edge of the sulcus surrounding the tumour was specially well-marked and raised into a prominent

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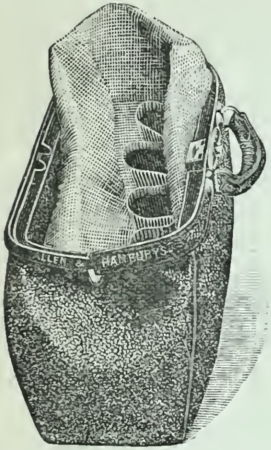

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margin, with two tubercles and a division between (see Plates I. and II.). One of the tubercles had cut a well-developed temporary incisor tooth, the other was about to do so (see Plate II.). The two tubercles looked like two maxillary processes, with a harelip between (see Plate II.). The nostrils were normal. The tumour did not communicate with the right one, which reached the pharynx. The mouth and palate were normal. The whole frontal bone on the side of the growth appeared to be much enlarged, but this may have been in part due to an oblique deformity, for the opposite occipital region was less prominent than the right. On the tip of the nose there was a small acorn-shaped projection (see Plate I.), from the apex of which sebaceous matter was expressed by squeezing the swelling. No hair was seen in this matter.

Operation.—A flap of skin was dissected off the growth, and the whole of it removed with a gouge. The edges of skin round the base of the growth were pared, and the flaps sutured to them covered the whole raw surface. The base of the growth was solid, and entirely blocked the upper part of the nose. The child made a good recovery.

The growth, about the size of a Tangerine orange, was divided, and duly sent to Mr Targett for histological examination. There was a dark pigmented streak running through it, probably the result of exploration with a hypodermic syringe some months earlier.

Mr J. H. Targett's Report.

The tumour must be regarded as a teratoma—of the variety known as Epignathus, in which a portion of an abortive twin has been included between the halves of the median cephalic fissure. The imperfect lip and the two tooth germs are sufficient evidence of fœtal elements. Such teratomata usually protrude from the mouth, or from a common naso-buccal cavity the halves of which have been prevented from uniting. In this instance we must suppose that the fissure between the fronto-nasal and right maxillary processes did not close, and the included teratome protruded through the aperture. Hence its partial covering with mucous membrane. Histologically it shows little more than fibrous and mucoid tissues irregularly mingled. No muscle was seen. A piece of hyaline cartilage was attached to one side of the preparation; but this I concluded was cut from the margin of the skull, and therefore did not belong to the specimen proper. There was no evidence of sarcoma in it.

Lannelongue, in his book (*Affections Congénitales, Tête et Cou*, 1891), refers to several cases under the heading of "Tératomes de la face." Not one of them exactly corresponded with the present case. The nearest were said to have sprung from the body of the sphenoid, or the base of the skull generally, and to have protruded into the nose, mouth, and pharynx, more rarely into the cranium itself. A large proportion of the cases were typical dermoids, but these must be arranged in a separate class.

There is only one specimen in the teratological collection here (Royal College of Surgeons of England). It is a fœtus with an enormous lobulated tumour protruding from the mouth. On the tumour portions of an upper and lower lip with a single nostril can be made out. The rest of the mass has a fibro-vascular structure with cysts containing bones, etc.

Dec. 14, 1895. J. H. TARGETT.

DR J. W. BALLANTYNE'S REPORT.

Through the kindness of Mr Rutherford Morison and Mr J. H. Targett I have been able to examine the photographs and drawings of the case, along with sections of the tumour itself, and at the request of Mr Morison I make the following Supplementary Report.

The mass removed from the child's face is evidently, as Mr Targett remarks, a teratoma, or rather, perhaps, it is "teratoid" in character, for it contains only teeth and mucoid tissue to indicate its fœtal origin. Such a description of it, however, does not tell anything of its mode of origin. It can scarcely be identified as an instance of epignathus, using that word in the only sense in which it has yet been applied. Ahlfeld, for instance, has defined this monstrosity as any case in which an acardiac amorphus is attached to the buccal cavity, and usually to the palate of the twin fœtus; but it must be admitted that Ahlfeld himself does not strictly adhere to his definition, for he includes some instances in which the mass was adherent to the outer surface of the jaws. Taruffi[1] gets over the difficulty by making two varieties,—one, endoprosopus amorphus, which corresponds to the epignathus of Saint-Hilaire, and in which the mass grows from the inside; and the other, exoprosopus amorphus, in which it is attached externally. Mr Morison's specimen might, therefore, be called one of exoprosopus amorphus (although it does not resemble exactly any of the previously reported cases in this group). Of course if this nomenclature be adopted, it practically means the acceptance of the theory that the mass on the external surface of the face is an aborted twin fœtus, a rudimentary parasite.

Mr Morison states that he has a difficulty in accepting this view of the case. In his letter to me (April 21, 1896) he says—"It seems to me that a supernumerary superior maxilla would be as reasonable an explanation of the tumour as to say it was an included fœtus of which only the maxillary processes remained." Of course the same objection may be made to the method of classification which places infants with supernumerary digits amongst the parasitic double monstrosities, for it might just as well be said that in them all that remains of the included fœtus is the extra finger or toe. It does seem ridiculous; but it must be regarded as an exigency of the classification which demands the artificial breaking up into groups of a series of specimens which, if we knew all the links, would form a continuous chain. As it is, there are always intermediate or connecting types for which it is difficult to find a place in any scheme of classification, and of such is Mr Morison's specimen. The typical double monster, such as the Siamese twins, is connected with the case in which the only sign of duplicity is an extra finger, toe, or jaw, by a long succession of varieties all differing slightly from each other, whilst the terminal members of the series, of course, show no resemblance at all. In this way the views of Mr Targett and Mr Rutherford Morison may be reconciled. The mass may be regarded as a teratoma, as an exoprosopus amorphus, or as an accessory upper jaw. Of course it is not supposed that a whole twin embryo at one time existed, and that all of it save a part of its upper jaw was destroyed; rather are we to think that the tendency to duplication showed itself only in the upper jaw, which threw out a bud or rudiment of an accessory maxilla. Cases of more or less complete accessory maxilla (upper and lower) are well known to teratologists, although their occurrence is rare. In a case reported by Israel[1] there was found attached to the outer surface of the left side of the lower jaw a supernumerary mandible, consisting of a bone containing tooth germs, a cystic mass, and a rudimentary mouth. In a similar way we may regard the tumour on Mr Morison's little patient's face as a rudimentary superior maxilla containing incisor tooth germs, and consisting partly of bone, partly of hyaline cartilage, and partly of fibrous and mucoid tissue, whilst the ridge round the tumour may perhaps be identified as an attempted formation of a mouth. If this be indeed its true nature, then it would fall to be included in a group established by Gurlt[2] to include one known specimen in the calf, and termed "heterocephalus epignathus," or, to use Taruffi's[3] nomenclature, "pleo-epignathus asimmetrus." But whether it is thus named and classified or not, the case still deserves the epithet of unique in at any rate the human subject.

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[1] Taruffi, C.—*Storia della Teratologia*, iii., p. 131, 1885.

June 10, 1896. J. W. BALLANTYNE.

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[1] Israel, O.—*Ein Fall von Verdoppelung der linken Unterkieferhälfte.* Inaug. Diss., Berlin, 1877.

[2] Gurlt, E. F.—*Ueber thierische Missgeburten*, p. 41. Berlin, 1877.

[3] Taruffi, C.—*Storia della Teratologia*, iii., p. 105, 1885.

V.—TECHNIQUE OF THE DILATATION OF THE PERINEUM IN LABOUR.

By Dr G. Coromilas, Calamata, Greece.

(Communicated by Dr J. W. Ballantyne.)

(*Read before the Edinburgh Obstetrical Society, 13th May* 1896.)

I have the honour of communicating to the Edinburgh Obstetrical Society four cases illustrating the method of dilatation of the perineum which I prefer, in order that the Fellows may try it in protracted labours from rigidity of the perineum, and assure themselves of its effects.

I purposely say nothing in this paper concerning the anatomy and physiology of the perineum, vagina, and os uteri, nor do I as yet make any comparison between this method and the others which are in use at the present time, for I have not had sufficient opportunities to decide whether this procedure is the best and whether it hastens the delivery or not.

Position of Patient and Technique of Dilatation.—The woman should be placed in bed on her back or left side, with the legs as in natural labour. The mons, labia majora and minora, perineum, and vagina should be thoroughly washed and rendered aseptic. The accoucheur should wash his hands very thoroughly, and grease them with the following ointment:—

Vaseline, . .	50 grammes.
Cocaine, . . .	3 grammes.
Antipyrine, . .	3 grammes.

The perineum, vagina, and os uteri must also be anointed with the same ointment. The accoucheur then passes four fingers of one hand within the vaginal orifice, and makes some semilunar movements, first at one side and then at the other, so as to dilate the perineum. After having made three or four such powerful movements, he introduces the fingers of the other hand, and repeats the performance. When the requisite degree of dilatation is achieved, he then passes the fingers fully into the vagina until the index, middle, and ring fingers touch the os uteri, and makes again the same movements at the same time as he pushes the perineum outwards with the palmar surface of the hand. When he feels the presenting part pressing upon the dorsal surface of his fingers he must then withdraw his hand, and take on his other duties.

Case I.—Mrs B., Calamata, aged 21 years, a iii.-para.

Previous History.—Menstruation always regular; had influenza four years ago; has had two children at the full time, and one miscarriage; she was four days in labour with her first child, and only a few hours with her second, when I for the first time performed dilatation of the perineum. She has suffered greatly since her last confinement (Sept. 7, 1894), and for the last two and a half months has been troubled with multiple abscesses on the surface of the body, which required to be opened and rendered aseptic. On this account she has not been able to walk, and has lost her appetite. Every day she has had one or two attacks of dizziness.

Present History.—The patient is emaciated and pale; the pulse is thready and rapid; the expansion of the lungs is good; the liver and spleen are hyperæmic; and the urine is normal. Three hours before my arrival the patient was seized with some regular but not very strong pains, and two hours before the membranes had ruptured. According to the midwife, a very small quantity of water had escaped. The child was always in the same place.

She was placed on her back after a vaginal injection had been given. I assured myself by palpation, auscultation, and digital touch that the membranes were ruptured, the liquor amnii escaped, and that the position was O.L.A. The external genitals and vagina were washed and rendered aseptic; afterwards I anointed them and my hands with this unguent:—

Vaseline, . .	50 grammes.
Carbolic acid, . .	1 gramme.
Iodoform, . .	2 grammes.

I then began the dilatation. During the manœuvres, which lasted six minutes, the labour pains were regular, frequent, and very strong. The second stage was finished without any tears; but the patient suffered much pain during dilatation, and cried out, "Doctor, you tear me; you tear me!" The umbilical cord was twisted round the child's neck.

Case II.—Mrs E., Calamata, 22 years of age, nervous, a i.-para. Menstruation irregular. On the 31st July 1894 I was called for the first time to see her by her sister. She was in a dirty hut, unattended by any midwife, and without any conveniences. She was in labour.

I prescribed carbolic lotion and the following ointment:—

Vaseline, . .	50 grammes.
Antipyrine, . .	5 grammes.
Cocaine, . .	3 grammes.

The patient was placed upon her back. By an external examination the position was found to be O.D.P. The bag of membranes had formed, but had not yet ruptured.

I washed the external genitals and vagina, and then anointed them, as well as my hands, with the prescribed unguent; I then began the dilatation. After some semilunar movements the pains were stronger. I ruptured the membranes, and continued the dilatation. In seven minutes the delivery took place without the patient having felt severe pains, and without the least tear in the genital organs. Such tears, it may be said, are seen in all parturient patients in Messenia and Laconia, and are supposed to be natural.

CASE III.—Mrs K., Calamata, 20 years of age, a ii.-para, in very poor circumstances. I was sent for to attend her in a very dirty house. When I saw her (November 19, 1894) she was anæmic, pale, and emaciated, her tongue was slightly saburral, and her pulse was thready and rapid. The labour pains were feeble and few.

Eight hours before my arrival the membranes had ruptured, and the waters had escaped. The head presented in the O.L.A. position. Two large cicatrices were seen on the perineum and labia minora, due to her previous confinement, when the necessary precautions were not taken. There was rigidity of the perineum and contraction of the os uteri.

I washed the vulva and gave an intra-vaginal injection. Then I anointed the parts and my hands with this unguent:—

Vaseline, . .	50 grammes.
Cocaine, . .	3 grammes.
Antipyrine, . .	5 grammes.

I began the dilatation of the perineum, and then put in the four fingers of my left hand and made the first semilunar movements. The expulsion of the child took place without the parturient patient having had severe pains. The delivery was completed without the least rupture.

CASE IV.—Mrs D. K., Calamata, 27 years of age, a iv.-para, nervous, and anæmic. She had suffered much in one of her previous confinements.

I saw her on May 2, 1895, at 5.30 A.M. She was in an exhausted state, with feeble labour pains. These pains had begun sixteen hours before my arrival, and had been strong for about eight hours.

The head was presenting in the left position, and the os uteri was the size of a penny. There was rigidity of the cervix, due to cicatricial contraction, caused by previous lacerations. There were three large cicatrices on the perineum and labia minora.

The vulva was washed and the vagina douched with a 3 per cent. solution of carbolic acid. At 7 A.M. the same condition of affairs was found, and another vaginal injection was given, and the perineum was dilated a little. The labour pains became stronger, but the cervix was still undilated. At 7.30 the labia majora and minora, the perineum, the vagina, and the os uteri were all anointed with the following unguent:—

Vaseline, . .	50 grammes.
Cocaine, . .	2·50 centigrammes.
Antipyrine, . .	3 grammes.

At twenty minutes to 8 o'clock I anointed my hands with the same, and again applied it to the vagina and os uteri. I began the dilatation of the perineum, but before it was completed the delivery had taken place (at three minutes to 8 o'clock).

I venture to think that by this manœuvre we can guard the perineum and the labia majora and minora from the rupture which happens so frequently, and that we can hasten the emptying of the uterus. Thanks to the physiological action of cocaine and antipyrine, the dilatation of the perineum and the delivery occur without severe pains, as is clearly shown by the above case-records. I say nothing (from literature) recording the local narcotic action of cocaine on the female genital organs, for this paper is merely a brief summary of my own small experience in the dilatation of the perineum during labour.

VI.—TWO TERATOLOGICAL CASES.

By Dr Mark Günsburg (Charkow, Russia).

(Translated and Communicated by Dr J. W. Ballantyne.)

(*Read before the Edinburgh Obstetrical Society, June* 10, 1896).

Abortion of Four Fœtuses, one of which was Monstrous.

A peasant woman, 20 years of age, in the fourth month of her first pregnancy, was at work towards the end of summer in a field nearly two kilometres distant from her home. In the afternoon she felt some pains in the lower part of the abdomen, and lost much blood; soon a small fœtus, well-formed, and of the male sex, was expelled, and the pains ceased. Returning on foot to her home, she passed the night and the next day quietly; but at six o'clock in the evening the pains returned. I was sent for, and found the uterus to be very large; a thread of umbilical cord was outside the vagina. By compression from above I delivered a second and then a third fœtus. Afterwards I passed two fingers into the vagina, to extract the placenta; but in front of it and in place of it I found in the uterus a fourth fœtus, which was removed along with the placentas. The puerperium was not marked by any feverishness, and the young woman recommenced her ordinary work on the fifth day after the miscarriage.

The first fœtus was buried in the country; the other three were secured by me for examination. The second and third fœtuses were normal; the fourth was a monstrosity. The detailed description of it may here be given.

The head resembled a fleshy malformed mass, broad in its upper and narrow in its lower part. In the cranium the occipital bone was absent; the frontal bones also were abnormal, for their facial parts were wanting. The eyes, mouth, and ears were absent; the nose was normal. In the middle part of the face and from prominences corresponding to the zygomatic bones two muscular masses passed downwards, and ended by converging in the region of the clavicles. Similar muscular masses passed from the posterior part of the head on to the back.

The sternum was absent. In its place was a thin membrane, under which one could see the organs of the thoracic cavity. The upper limbs were deformed. The forearm ended in three eminences, resembling fingers. The abdomen showed a fissure through which a portion of the intestine was prolapsed. The genital organs (male), consisting of a penis and scrotum, were normal.

Certain facts regarding the dimensions, etc., of the fœtuses may be presented in a tabular form:—

Table of Measurements, etc., of Quadruplets.

No. of Fœtus.	Length of Fœtus.	Circumference of the Head.	Diameter of the Shoulders,	Diameter of the Pelvis.	Occipito-mental Diameter.	Mento-bregmatic Diameter.	Claviculo-pubic Diameter	Claviculo umbilical Diameter.	Umbilico-pubic Diameter.	Length of Lower Limbs.	Length of Upper Limbs.	Genital Organs.	Placentas.	Umbilical Cord.
1st.	Unknown.											Masculine.		
2nd.	18	13	4	3	10	6	7	5·5	1·5	6·5	7	Feminine.	Three placentas united in one sac, 11 × 8, and one separate placenta.	Central insertion, length 15 cms.
3rd.	16	13·5	4·5	3	9	5	9	6	3	6	6·5	Masculine.		
4th.	13	11	4·2	3	9·5	6	4	3	1	4·5	2·6	Masculine.		

All the measurements are given in centimetres.

A CYST ON THE BACK OF THE INFANT, SIMULATING THE HEAD OF ANOTHER INFANT.

I was called to attend a woman 27 years of age, and the mother of two living children. Her third confinement was abnormal. At the moment of my arrival the head of the infant was already outside the vagina; the expulsion of the trunk, however, was hindered. The infant was dead. I introduced one finger, and afterwards half my hand within the genital organs of the parturient, and there I found a tumour simulating the head of another infant, belonging, as I supposed, to twins united together. But a more complete examination showed that the tumour was rounded, not very hard, had no sutures or fontanelles, and gave a feeling of fluctuation like that of an indiarubber ball well filled with water; the skin covering the tumour showed no hairs. I asked for a consultation with my worthy colleague, Dr Favre, to whom I wrote asking him to bring a perforator. He agreed with me that we had to do with a tumour full of fluid. I punctured it, and immediately a large quantity of serous fluid escaped, and afterwards the trunk of the infant was extracted without any difficulty.

On the back of the infant was found a sac with a whitish surface like skin, of thickness of from ·5 to 1·0 cm.; it was inserted without a pedicle in the sacro-lumbar region, where could be felt a defect in the vertebræ, a fissure as in spina bifida. There was no other deformity in the infant, which was well developed and of the male sex. The two other members of the family showed no anomaly.

The father gave me permission to send the body of the fœtus to the University, which I immediately did; but two or three hours later the grandfather of the child came to my house in tears, as he did not wish the infant to be dissected, but desired to bury it with the rites of the Church. I gave him a letter to take to the Professor to whom I had sent the specimen, and so the body of the child was returned to him. In this way I lost the opportunity of giving a more detailed description of the tumour.

NOTES ON DR GÜNSBURG'S TERATOLOGICAL CASES, BY DR J. W. BALLANTYNE.

Dr Günsburg's second case, which was evidently one of spina bifida of the sacro-lumbar region of the vertebral column, calls for no special comment; but his first observation is, I believe, almost if not quite unique.

Regarding it simply as a case of quadruplets it had a very considerable interest, for such occurrences are extremely rare. In P. Charbonnier's *Étude des Grossesses triples et plus que triples*, published last year (1895), the proportion of quadruplets to single births is given as 1 in 400,000; but some statisticians have placed it as low as 1 in 2,074,306 (Puech), and others as high as 1 in 20,000 (Plenck). In Switzerland, between the years 1881 and 1893 there were 1,108,092 births, of which one only was an example of quadruplets. Of course in dealing with such a rare occurrence the coincidence of two examples within a few weeks of each other will temporarily alter very markedly the proportion; and probably about one case of quadruplets in half a million labours is a fair estimate of frequency. During the last two and a half years a few instances of quadruplets have been put on record, notably one by Bousquet (*Ann. de gynéc.*, xlii. p. 55, 1894); one by Pergamin (*St Petersburg Med. Wochnschr.*, Suppl. N. 1, 1895), and one by Stahl of Chicago (*Trans. Chicago Gynæc. Soc.*, p. 6, 1896).

In several of its details Dr Günsburg's case was in accordance with what has been found to be usual in quadruplets. For instance, three of the fœtuses were males and one a female. According to Charbonnier's statistics, this is not the commonest arrangement, for out of 61 cases he found two girls and two boys in 18; four boys in 13; three boys and one girl in 12; three girls and one boy in 9; and four girls in 9 instances. The pregnancy ended prematurely at the fourth month, and we find that the larger the number of fœtuses *in utero* the greater is the liability to abortion. In Dr Günsburg's observation there were two separate placental masses, one of which was made up of three placentas united into one, and having one chorionic sac, whilst the other was quite single. It may be concluded that the composite placental mass belonged to the three male infants, whilst the single separate placenta was for the female fœtus. This is the most common arrangement, for in 43 instances Charbonnier found in 15 that there were two placentas, sometimes one being very large, with three cords, and the other small, with one cord, sometimes two of nearly equal size; in 14 cases the placenta was single; in 8 there were four placentas; and in 6 there were three after-births, one of which carried two cords. In Dr Günsburg's specimen there seems to have been only one cord (centrally inserted) for the three placentas, making up the one mass, and this is quite in keeping with the fact, to which reference will immediately be made, that one of the fœtuses was a placental parasite of the paracephalic type. It is reasonable to believe that there were two chorionic sacs, one containing the three male fœtuses, and the other the single female; and what occurred seems to have been the rupture of the large sac and the expulsion of one male, then the rupture of the second sac and the birth of the single female; and, finally, the expulsion of the other two males from the first sac. Thereafter the two placentas came away together. Judging from the arrangement of the membranes, the three male fœtuses were developed from one ovum, and the single female from another, so that we may regard it as an instance of binovular plural pregnancy, in which one of the ovules produced triplets and the other a single fœtus.

By far the most important feature of the case, however, was the condition of one of the fœtuses. From the description of it which the author gives it was evident that it was a paracephalic monstrosity. Now, I have within recent years met with two examples of paracephalus, in both of which the monstrous infant was one of twins, and in the papers on allantoido-angiopagous fœtuses[1] which I have communicated to this Society I referred to two or three cases in which such a monstrosity was one of triplets; *but I know of no case in which a paracephalic fœtus was born along with three other fœtuses.* In this sense Dr Günsburg's observation is truly unique. I have so recently and so fully described the paracephalic variety of the allantoido-angiopagous fœtus, that I need not do more here than repeat, that whilst allantoido-angiopagous twins are rare, and triplets very rare, a case of quadruplets, one of which is paracephalic, such as the present, has not hitherto been reported. From Dr Günsburg's description, it would seem that the monstrous fœtus was supplied with a heart; it was therefore a paracephalus cardiacus.

The two above recorded cases were originally sent to me for

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[1] *Trans. Edin. Obst. Soc.*, xviii. pp. 38, 94, 201, and 257, 1892-93.

TABLE II.

INJURIES AND DISEASES OF BONE.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, 1883.

Hypertrophy.

Atrophy—

A. Simple { from disease.
congenital.
deficient blood supply, etc
B. Rickets and allied diseases
C. Infantile syphilis
D. Cretinism.
E. Mollities ossium

Fractures.

Inflammation of bone and periosteum—

A. With superficial formation of new bone
B ,, increased thickenings of walls
C. With suppuration in [illegible]
Tuberculosis
D. Ulceration—
Simple, from inflammation, [illegible]
etc.
of articular surfaces.
Carious
Caries without suppuration
Chronic rheumatic arthritis.
Mycetomatous
Syphilitic.
Cancerous.
Necrosis of ulcerated bone.
E. Necrosis—{ Characters.
Varieties, etc.

Tumours.

TABLE III.

INFLAMMATION OF BONE AND ITS EFFECTS.

Erichsen's Surgery, 1895.

General Pathology of Inflammatory Affections of Bone.

Periostitis.
Chronic osteitis and periostitis.
Chronic abscess of bone.
Diffuse septic osteomyelitis.
Acute necrosis.
Caries.
Necrosis.

Structural Changes in Bone and Tumours of Bone.

Hypertrophy.
Rickets.
Mollities ossium.
Osteitis deformans.
Acromegaly.
Tumours of bone.

TABLE IV.

DISEASES OF BONE.

H. H. CLUTTON, *Treves' System of Surgery* 1895.

Osteitis.
Periostitis.
Osteomyelitis
Epiphysitis.
Necrosis.
Tuberculous disease of bone.
Syphilitic disease of bone

Hypertrophy and atrophy of bone
Osteomalacia.
Osteitis deformans.
Acromegaly.
Leontiasis ossea.
Transplantation of bone
Tumours of bone.

ʒ3.

in bone.

.s.

n inflammation, pressure,

surfaces.

out suppuration.

ɜumatic arthritis.

ous.

ulcerated bone.

racters.

ieties, etc.

ICTS.

Bone and Tumours of

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publication in the defunct *Teratologia*; but I thought them of such general interest that I asked Dr Günsburg to allow me to read them before this Society, a request to which he gladly acceded.

VII.—CLASSIFICATION IN PATHOLOGY.

By Charles W. Cathcart, F.R.C.S.

(*Delivered before the Royal College of Surgeons of Edinburgh*, 26*th June* 1896.)

(*Continued from page* 46.)

Among the diseases which students find especial difficulty in mastering and teachers in explaining, there are few, if any, which are more troublesome in this respect than diseases of Bone. We may begin with them, therefore, as a good test subject for the method of classifying primarily by "cause." If we examine carefully the classifications of bone disease given in museum catalogues and in text-books on surgery, we will probably be struck with two things: first, that no two, in either class of book, are exactly alike, although similar in the main features; and, second, that they all show cross division either in their primary or in their secondary groupings, and sometimes in both. The second observation will perhaps explain the first, for no cross division can be satisfactory, and hence each succeeding classifier has thus probably been tempted to try a modification of his own. That these modifications have not been at all successful, is apparently due to the real cause of failure not having been recognised.

Although my present purpose is to bring forward a new method rather than to find fault with those now in use, some criticism is necessary, if only to show that there is room for improvement. We may therefore glance briefly at the method of classification adopted in the Catalogue of the Museum of the Royal College of Surgeons of England (Table II.), as the model more or less faithfully imitated in many recent catalogues, and at those found in the tenth edition of Erichsen's *Science and Art of Surgery* (1895) (Table III.), and in Treves' new *System of Surgery* (1895) (Table IV.).

We need not stop just now to discuss how far the methods of classification employed in clinical text-books ought to correspond with those used in museum catalogues; that will be more suitably done afterwards. What we have to consider meanwhile is the defects of the methods actually in use. We may therefore, in the first place, refer to these general features in which the three selected specimens of classification agree. Each, then, is primarily and chiefly subdivided on the basis of "effect" or "result," under such headings as Hypertrophy, Atrophy, Caries or Ulceration, Necrosis, and Inflammation, although the exact wording of the headings is not always the same. Thus "Inflammation" is the heading of a sub-series in the Museum catalogue, while it appears as the title of several groupings in the other two, under such names as Periostitis, Epiphysitis, Chronic Ostitis and Periostitis, and so on.

Now, "Inflammation" is in some ways a convenient heading to use so long as it is made to include all the forms and results of this condition, but when it stands alongside of headings which indicate *results* of inflammation a source of confusion is introduced, because the groups thus formed do not "exclude each other." In the Museum catalogue this may be seen in the use of the heading "Hypertrophy," and in the other two by that of such additional headings as "Caries" and "Necrosis," all of which may be considered as results of inflammation. But in addition to these there is another source of cross division. Cause is employed simultaneously with effect as a basis of division. Thus, under section "D. Ulceration," in Table II., we have groups headed "carious" and "caries without suppuration," and "necrosis of ulcerated bone," side by side with others headed "mycetomatous" and "syphilitic." Now syphilis may produce a "carious" condition of bone, as well as "necrosis of the ulcerated bone," so that specimens of either of these conditions might equally well be placed in the "Syphilitic" group. Again, in Table IV. the same logical error is illustrated in the use of such headings as "Tuberculosis" and "Syphilitic" disease of bone along with "Osteitis" and "Necrosis," "conditions" which might result from either of the two previous "causes." In Table III. this error is less prominent. "Cause" is only introduced there once—*i.e.*, as "Diffuse septic osteomyelitis."

To sum up these logical objections to existing methods of classification, we may say that the principle or basis of classification selected is sometimes improperly applied, and that the groups are formed under more than one principle. This, I believe, is not a mere matter of words. If the general arrangement is clear, whether of a series of specimens or in the mode of explaining and discussing the diseases which such specimens illustrate, the student acquires his knowledge more quickly and thoroughly, and retains it more easily than is otherwise possible.

An objection to using "Inflammation" at all as a heading is that the exact application of the word is uncertain. If it is retained, however, we ought to separate non-inflammatory from inflammatory diseases. The inflammatory might then be subdivided strictly according to the result, such as enlargement, caries, or necrosis, and each of those groups might in turn be again subdivided according to the cause of that result. Or, if preferred, certain definite causes of bone disease, such as syphilis or tubercle, might be considered separately, and their results explained; but, to avoid confusion, it would have to be made quite clear that the groups formed on this "cause" basis were kept separate from those similarly formed on the "result" basis.

As preferable to either of these methods, I would recommend that the inflammatory diseases should be first formed into main

TABLE V.

DISEASES OF BONE.

I. Primary.

- **Congenital malformations.**
- **New growths.**
- **Senile changes**

II. Secondary—due to

- **Altered function—**
  - Hypertrophy from strain
  - Atrophy from disuse
- **Affections of nervous system—**
  - Atrophy in paralysis.
  - Locomotor ataxia.
  - Syringomyelia.
- **Disturbances of circulation—**
  - Bony growth near ulcers, etc.
- **Alterations in blood glands—**
  - Of thyroid—Cretinism
- **Recognised disturbances in blood maintenance—**
  - Scurvy.
- **Obscure disturbances in nutrition—**
  - Rickets.
  - Osteomalacia.
  - Ostitis deformans
  - Acromegaly
  - Rheumatism.
  - Gout.
- **General blood poisons—**
  - **Chemical—**
    - Phosphorus.
- **General blood poisons—**
  - **Micro-organismal—**
    - Syphilis
- **Local irritation—**
  - **Micro-organismal—**
    - Suppurative organisms from circulation.
    - Suppurative organisms through wounds.
    - Tuberculosis
    - Typhoid bacillus.
    - Actinomycosis.
    - Echinococcus
    - Mycetoma fungus
- **Local irritation—**
  - **Mechanical—**
    - Nodes from intermittent pressure.
    - Ostitis from bruise or strain.

. **nutrition—**

-

-

isms from circulation.
isms through wounds.

.

mittent pressure.
se or strain.

groups according to the cause of the inflammation, and these again subdivided according to result. I employed this method classifying bone diseases in our Museum Catalogue published in 1894, and in arranging my lectures on surgery. The subject treated in this way was much easier to explain, both in museum demonstrations and in class lectures, and the advantage to the students seemed equally great, so far as it was in my power to judge.

I have, however, latterly seen reason to improve further upon this plan, and the one which I now advocate as carrying most advantages is an extension of the "cause" basis to other diseases besides those called "Inflammatory" (see Table V.).

In the subdivision of diseases of bone, as shown on the Table, the headings follow those already referred to in the explanation of general scheme of causation (see Table I.).

Among the "Primary Diseases" of bone the groups as now formed do not require any special explanation.[1]

In glancing over the groups of "Secondary Diseases," it will be noticed that, except in the name "ostitis deformans," there is no mention of "Inflammation." There is now no need for the term among the main subdivisions. The specimens illustrating various forms of inflammation of bone, notably those caused by organisms, fall naturally into groups beside one another, under the various causation headings of the general scheme. We thus avoid the use of a word whose meaning is not the same to every one, while we teach, or remind, those who use this classification that the diseases usually spoken of as inflammatory are all caused by something. This is an important truth which is apt to be overlooked. Moreover, this way of considering inflammation associates it with other forms of disease which in like manner are the results of certain causes. Perhaps, when we understand degenerations a little better, we may find that they are due to a special application of the same cause or causes which under other circumstances produce what is known as inflammation.

The omission of the word inflammation is a necessary consequence of an adhesion to the headings provided in the general causation scheme. But it will be noticed that all the headings of that scheme are not represented among those of Bone disease. This is due to the fact that the scheme is more extensive than is necessary for most individual organs or tissues. Among the diseases of some organs we find certain causes very prominent, and these again may not be distinctly represented among the causes of disease in other organs. This is explicable partly by the well-known fact that certain poisons are selective in their action, partly by the existence of those differences in structure, function, and position of the various organs and tissues which render them more or less exposed to the various injurious influences. I have, on this account, not numbered any of the headings. To repeat the full number of causes where several were not required would be unnecessarily clumsy, and to alter the number attached to the causes in order to suit each case would be confusing.

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[1] It may be mentioned once for all that in the Tables V. to IX. the diseases enumerated in the various groups are intended as examples rather than as forming an exhaustive series.

If we consider the individual groups under the various headings, as shown in the Table, they will, I think, be found to resemble one another more closely than do those of other methods of classification; and, with one possible exception, there is no separation of diseases which previous clinical experience has shown to be properly considered together. The possible exception is the position in the scheme of "bony growth near ulcers." But the reason of the difficulty here is really owing to uncertainty as to its real cause; *i.e.*, whether the development of bone which takes place near a chronic septic inflammation is caused by extension of the septic poison, or merely by vascularity brought about by the agency of this septic poison in the adjacent soft parts. The latter *seems* to be more probable, but if the former were proved true, these affections would form a section of the diseases caused by "suppurative organisms through wounds."

The Table does not show how the subdivision of bone diseases is to be carried beyond the main groups, but I may explain the mode in which specimens in a museum series may with most advantage be arranged under the various headings thus mapped out. The guiding principle for this is a very simple one. It is to illustrate the successive stages of any given disease, as far as the circumstances of the case permit,—to furnish the student of Pathology, in fact, with an object-lesson in analysis of disease, whereby the processes which he watches at the bedside, moving on steadily and often in parts of the body beyond his view, are shown to him fully exposed. As on the separate pictures of a kinetoscope, he can then study the successive stages at his leisure and understand what would otherwise be beyond his reach.

To fulfil this object we must keep by themselves the specimens which illustrate different phases of any one disease, and arrange them in order according to the stage of that phase which they represent. Whether or not we take individual bones of the skeleton by themselves in carrying this out, will depend on whether or not the process is sufficiently characteristic in that bone to deserve special attention, and how far the number of specimens at our command will admit of this being done to advantage.

To illustrate my meaning I may take up Necrosis. This is a result of various forms of disease, chiefly syphilis, pus-forming organisms, and tuberculosis. The specimens of necrosis belonging to each of these groups are arranged by themselves so as to illustrate the process of separation and the changes which occur after separation. Besides the evident advantage of such an arrangement, the student cannot fail to observe that the process of necrosis takes a different

TABLE VI.

DISEASES OF THE SKIN

Class I.—Primary.

	1. Faults in development, growth, and function.	**2. New growths.**	**3. Senile Changes.**
(1.) EPIDERMIS	Lichen pilaris. Ichthyosis Tylosis	Horns Warts Molluscum contagiosum epitheliale Epithelioma { lobulated pearly. tubular	Harshn
(2.) PIGMENT	Congenital abnormalities Leucoderma. Xeroderma pigmentosum	Moles Melanotic sarcoma " epithelioma	Darkening.
(3.) SEBACEOUS GLANDS	Seborrhœa Comedo. Milium.	Cysts. Adenoma. Malignant growth	Diminished secretion. Sebaceous warts.
(4.) HAIR.	Hirsuties. Alopecia. Monilethrix	Darier's dermatosis. Keratosis follicularis (lichen spinulosus).	Canities Falling out.
(5.) NAILS	Overgrowth. Atrophy		Brittleness.
(6.) SWEAT GLANDS	Hyperidrosis. Bromidrosis. Chromidrosis. Cheiro-pompholyx Anidrosis.	Cysts Adenoma. (?) Rodent ulcer	Diminished secretion
(7.) BLOODVESSELS	Port wine stain	Nævi { capillary venous mixed Cirsoid aneurism	Atrophy
(8.) LYMPH VESSELS.		Lymphangioma.	
(9.) NERVES.	Hyperæsthesia Pruritus Anæsthesia	Neuroma cutis dolorosum Subcutaneous tubercle	
(10.) MUSCLES		Myoma	Fatty degeneration.
(11.) CONNECTIVE TISSUE	Unnatural elasticity	Keloid Xanthoma	Degeneration

TABLE VII.

DISEASES OF THE SKIN

Class II.—Secondary—due to

Excessive function—
Sudamina.

Faulty nerve influence—
Herpes zoster, frontalis, et
Dermatitis herpetiformis.
Morphœa.
Scleroderma.
Glossy skin.
Anæsthesia.
Hyperæsthesia.

Disturbances in circulation—
GENERAL. Cyanosis.
LOCAL. { (?) Raynaud's disease
Varicose eczema.

Alterations in blood glands—
Of thyroid—Myxœdema
Of suprarenal—Addison's disease

Recognised disturbances in blood maintenance—
Scurvy

Obscure disturbances in nutrition—
Alopecia
Acne
Erythema multiforme
Lupus erythematosus
Urticaria.
Eczema
Lichen planus.
Seborrhœic dermatitis
Pityriasis maculata (Gibert)
Psoriasis
Pityriasis rubra pilaris
Pemphigus
Purpura.

General blood poisons—
(Chemical)—
Copaiba
Bromide of potassium.
Iodide.

General blood poisons—
(Micro-organismal)—
Measles.
Rothlen.
Scarlatina.
Variola
Varicella.
Va
Syphilis.
Fran e-
also
Labial herp

Local irritation—
(Micro-organismal)—
Septic micro-organisms—
Erysipelas.
Carbuncle.
Boil.
Ecthyma
Sycosis.
Impetigo cont
Intertrigo
Tubercle bacillus—
Lupus
Scrofuloderma.
Leprosy bacillus.
Filaria sanguis hominis—
Elephantiasis
Favus.
Tinea versic
" tricho
" capiti
" corpor
" barb
" cruris
Cysticercus.
More highly organised parasites—
Jigger.
Acarus scabei.
Lice.
Fleas

Local irritation—
(Chemical)—
Paraffin eczema
Soot "
Bad soap "

Local irritation—
(Radiant and Thermal)—
Sunburning and freckles
Hydroa vacciniforme.
Burns.
Chilblains

Local irritation—
(Mechanical)—
Blisters from friction
Corns

1. **Faults in development, growth, and fur**

(1.) EPIDERMIS.	Lichen pilari Ichthyosis. Tylosis.		Harshne
(2.) PIGMENT.	Congenital a Leucoderma Xeroderma p		Darkeni
(3.) SEBACEOUS GLANDS.	Seborrhœa. Comedo. Milium.	GLANDS.	Diminis Sebacec
(4.) HAIR.	Hirsuties. Alopecia. Monilethrix.		Canitie Falling
(5.) NAILS.	Overgrowth. Atrophy.		Brittlen
(6.) SWEAT GLANDS.	Hyperidrosi Bromidrosis Chromidrosi Cheiro-pom Anidrosis.	NDS.	Diminis
(7.) BLOODVESSELS.	Port-wine st	ELS.	Atroph
(8.) LYMPH VESSELS.		SSELS.	
(9.) NERVES.	Hyperæsthe Pruritus. Anæsthesia.		
(10.)			Fatty d
(11.) CONNECTIVE TISSUE.	Unnatural	E TISSUE.	Degene

form and attacks different bones and portions of bones in the different diseases which produce it. Thus necrosis is chiefly seen in the skull in syphilis, in the shafts of long bones in septic disease, and in cancellous tissue in tuberculosis. The same method of arrangement is equally applicable to caries, that needless bugbear of students, and to other changes in bone, to which it is unnecessary for our present purpose to refer.

This method of museum arrangement, of course, throws light on clinical work, and this ought surely to be the primary object of all medical museums. The idea that they are receptacles for mere anatomical and pathological curiosities is still far too prevalent.

But in order still further to bring the specimens into line with clinical work, their clinical histories are given as fully as possible, and they are illustrated by casts, drawings, and photographs wherever that can be done.

Passing next to diseases of the Skin, we may remark that no two authors are agreed as to the best method of classifying these diseases. The difficulty is no doubt partly due to the fact that the skin is a very complex organ. It has numerous glands and appendages besides its layers of epithelium and connective tissue. Hence evident affections of certain parts of the skin have been classed by themselves, side by side with some groups indicating given "results" of disease, and with others produced by definite "causes." In other words, not only two but three bases of division have been employed simultaneously,—"locality," "result," and "cause," with the necessary consequence.

The Primary Diseases (see Table VI.) are ranged in three parallel vertical columns devoted respectively to—(1), Faults in development, growth, and function; (2), to new growths; and (3), to senile changes. In each column the diseases are considered according to the various parts of the skin involved, taken in the same order from above downwards in each case. Although it may not at first sight appear so, "cause" is really being employed here as the first basis of subdivision, for it is involved in the headings of the three main subdivisions. There is, of course, room for difference of opinion as to the class to which some of the diseases should properly belong, but that is a necessary consequence of our present imperfect knowledge.

Among the Secondary Diseases (see Table VII.) the first five groups hardly require comment. The sixth—embracing those diseases which are due to "obscure disturbances in nutrition"—is a group whose members have many points in common. They are the commoner skin diseases. Their exact origin is obscure, some constitutional derangement being generally considered to be present. They generally require local as well as general treatment, and that of a more or less empirical kind. The drug rashes form a distinct group, and the next heading embraces the exanthemata, which clinical experience would naturally class together. The diseases due to local micro-organismal action form a no less separate group. In the majority of cases the treatment is mainly, if not entirely, local, just as in the previous group it was chiefly general. The remaining groups are as well defined as those already mentioned.

In filling in the diseases belonging to the various classes I have had the great benefit of Dr Allan Jamieson's kind interest and assistance. He allows me to say that the groupings formed by this causation standard are more satisfactory than those by any other plan with which he is acquainted. Dr Ballantyne, who has also kindly helped me, finds that the diseases placed in the Primary group correspond closely with those most frequently found in the fœtus. This, from so well known an authority on congenital diseases, is a strong confirmation of their essentially "primary" character, although, of course, secondary skin diseases, such as small-pox due to blood-poisons transmitted *in utero*, are by no means unknown.

In a museum only a few of the skin diseases can be represented by actual specimens, and, when at all, but imperfectly. The great majority can, however, be illustrated by casts and coloured drawings, and we hope before long to arrange a series of such drawings for inspection in our Museum.

The diseases of the Brain (see Table VIII.), which we have now to consider, are more difficult to arrange satisfactorily than either of the two previous classes of disease. One reason for this is the very complex and delicate character of the functions of the brain, the uncertainty of even knowing the exact seat of many of these functions, and still more of what constitutes a disturbance of those seats. If we knew more accurately where to concentrate attention in searching, we would have a better chance of finding minute changes; although, as I said at the beginning, it does not follow that every functional deviation will have a detectable corresponding change in structure.

In spite of the difficulty, however, I venture to think that this method of classifying brain disease is valuable, for the following reasons:—(1.) We can contrast the diseases of the brain with those of other organs. (2.) We retain the advantage of the causative standard for those diseases which are better understood, while the others are grouped together, certainly as well as, and perhaps better than is effected by other methods. In a word, we lose nothing, and gain a good deal.

Some of the diseases—specially those marked only by functional change—can be represented in a museum by pictures only, and some not even by them; but it seems advisable to complete the scheme, and omit in the museum series those which cannot be thus illustrated.

The outline given on the Table will suffice for the diseases of the Membranes of the Brain, and for the Primary class of those of the Brain itself. In the Secondary class, those due to "disturbances

CLASS *I. Primary.*

Congenital malformat

,, functional

New growths.

Senile changes.

CLASS *II. Secondary—due*

General weakness.

Alterations in nervou

Descending scle

Disturbances in circul

Thrombosis.
Embolism.
Hæmorrhage.

Obscure disturbances
chiefly to fun

MOTOR
- Epileps
- Chorea.
- Stamme
- Nystagn
- Wry nec
- Hysteri
- Paralysi

SENSORY
- Neuralg
- Hysteri
- Sense o

DISEAS

CLASS *I. Primary.*

Congenital malformat

(See Malformati

New growths.

Senile changes.

CLASS *II. Secondary—due*

General weakness.

Disturbances in circul

Pachymeningitis

TABLE VIII.

DISEASES OF THE BRAIN.

Class I. Primary.

Congenital malformations.

" functional defects.

New growths.

Senile changes

II. Secondary due to

General weakness.

Alterations in nervous system—

Descending sclerosis

Disturbances in circulation

Thrombosis
Embolism
Hæmorrhage

Obscure disturbances in nutrition, leading chiefly to functional changes—

Epilepsy
Chorea
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

PSYCHICAL
Eccentricities of temper and disposition.
Hallucinations.
Hypochondriasis.
Insanity and idiocy.

COMBINED
Trance
Catalepsy.
Hysteria.
Neurasthenia.

Obscure disturbances in nutrition leading to organic changes—

Progressive softening
Sclerosis.

General blood poisons affecting brain Chemical—

Drugs, etc

General blood poisons affecting brain— Micro-organismal—

Tetanus
Hydrophobia
Syphilis
Fevers

Local action of micro-organisms—

Sepsis
Tuberculosis.

Distension of ventricles—

Hydrocephalus

TABLE IX.

DISEASES OF THE MEMBRANES OF THE BRAIN

Class I. Primary

Congenital malformations

See Malformations of Brain

New growths

Senile changes

Class II. Secondary—due to

General weakness.

Disturbances in circulation

[illegible]

Obscure disturbances in nutrition

General blood poisons— Chemical.

General blood poisons Micro-organismal—

[illegible]
Syphilis

Local micro-organismal action—

Sepsis
Tuberculosis

of circulation" form a group which are naturally considered together. The causes of those disturbances in circulation are not taken into account in the formation of the groups, but they might, if thought advisable, be used to further subdivide the groups.

It is interesting, in considering those functional changes which come in the next group, to note that all the known separate functions are liable to similar derangements without a corresponding alteration in structure that can be detected.

Similar functional changes are also observed in some of the diseases accompanied by gross lesions, but these are excluded by the heading.

The other groups will, I think, be sufficiently evident without further explanation.

I do not propose now to show any further applications of this method of classification. The three organs whose diseases have been selected for illustration are sufficiently different from one another in structure and function to serve as typical examples of others. I may, however, be allowed to mention that the classification of diseases of joints follows easily in the same line as that of bones, and that the classification of gangrene of the limbs is also much simplified to students by this method, while the "causes of inflammation" run at once into various branches under certain of the various headings of the secondary causes of disease in general.

There are some possible objections, however, still to be met, and the first is that the causes selected as bases for classification are not always, or necessarily, the prime sources of mischief. Thus an organ may be diseased because its vessels are blocked, but the causes of that blockage are not thereby taken into account. The answer to that is, that it is of great importance, and sometimes of the greatest importance, to ascertain the immediate cause of the derangement of any organ, and that we do not by postponing the search for the remoter cause stave off the question indefinitely. By turning, in the selected instance, to the diseases of the vessels we would be carried a step further back in the required direction, and we might proceed in this way, if our knowledge be sufficient, till we reach the earliest source of mischief.

Then another possible objection is that often we must only consider a cause as probable. So long as it is the most probable known to us, I do not see what more we could expect, or that there is any harm in using it. Its use brings out all the information we have at the time.

Still another objection is that several causes often act simultaneously. What we must do, then, is to put the chief cause first, and, if necessary, to let the next cause follow as a subsidiary basis of classification. Thus, besides a class of syphilitic bone diseases, we may have another class where the syphilis is complicated with sepsis, or with tuberculosis, and so on.

Lastly, this method of classification neither excludes nor supersedes a clinical method of looking at symptoms which is very important in diagnosis, viz., that by which a certain symptom or condition is considered in view of all its possible causes. Instead of so doing, this method of classification rather clears the way for thus working out a diagnosis, for we are only in a position to select the true cause of a given condition out of several possible causes, when we thoroughly understand each. The art of diagnosis depends on the ability to appreciate the importance of fine points. If we have traced out the results produced by a given cause in all their possible modifications and stages, we are in the best possible position to identify that cause when we meet it at work in an unusual form, or when masked by unusual complications.

To sum up some of the main points which have been brought forward in the course of this lecture, it has, I hope, been made evident—

1. That the canons of logical division can be applied to the working out of any system of classification in Pathology, and that the failure to fulfil logical requirements leads to a confusion of the subject, which is an unnecessary addition to the burdens of the student.

2. That the method of classification by cause now advocated not only meets the essential requirements of a sound classification, but has the following special advantages:—

(1.) It permits us to use the same method of classification for the diseases of various organs, thus simplifying the subject, enabling us to contrast the diseases of various organs, and probably in the course of such contrast leading to a deeper insight into the working of certain causes of disease.

(2.) It enables us to arrange the specimens in a museum and the subjects for discussion in a systematic text-book on the same plan, so that the one directly helps the other, while the information thus conveyed is presented to the mind in a form which naturally and easily lends itself to clinical purposes.

Part Second.

REVIEWS.

"*The Lancet*" *and the Hyderabad Commissions on Chloroform.* The Offices of *The Lancet*, London.

The active part taken by the editors of *The Lancet* in criticising the first Hyderabad Commission was followed by a proposal, made by His Highness the Nizam of Hyderabad, that the work of the Commission should be amplified and extended. A second Commission was accordingly initiated, at which Dr Lauder Brunton was *The Lancet's* representative and assessor to the Commission, while His Highness the Nizam provided £1000 to defray expenses.

The volume now published by *The Lancet* in separate form gives a reprint of the reports issued by both the first and second Commissions, and in addition reproduces the report of the Commission appointed by *The Lancet* "to investigate the subject of the administration of chloroform and other anæsthetics from a clinical standpoint." This latter part was first published in *The Lancet* in 1893. Dr Dudley Buxton acted for *The Lancet* in this investigation.

The conclusions arrived at by the Hyderabad Commissions are so well known that it is only necessary to state the chief point to which they specially drew attention, viz.,—"The results in one respect are uniform. In every case where chloroform was pushed the respiration stopped before the heart." The practical conclusions deduced from the experimental results are in effect the rules for chloroform administration laid down by more particularly the Edinburgh School, and are based mainly upon the important conclusion quoted. Eighty-eight pages of this reproduction are taken up by the reports from the two Commissions, along with a most valuable addition to the reports, as published by the Hyderabad Government, viz., the insertion of the various tracings of the manometer experiments. Along with these there is also the Glasgow Committee's tracing, 1879. For purposes of comparison this is most important.

The importance of such a large series of experiments upon the lower animals, carried out with the utmost care and under the eye of so skilled an experimentalist as Dr Lauder Brunton, more especially when they uniformly showed respiratory failure before cardiac failure, was fully recognised by the editors of *The Lancet;* and they accordingly instituted the "investigation from a clinical standpoint," and to the report of this inquiry the second half of the volume is given up.

The inquiry has apparently been carried out with great diligence, and the report is of corresponding importance. Furthermore, the various fallacies which must be present in an investigation of this nature have been eliminated as far as possible, and every credit is due to those who have so thoroughly carried out their difficult task.

At the outset attention is drawn to the very different conditions under which experiments on animals, as contrasted with clinical practice, are carried out; further, that the patients differ in age, sex, strength, etc., and that the administrators vary enormously in their training and skill. It is shown that no age is free from danger, no sex, and no climate. No method is perfectly safe.

Allusion is made to the question, and an attempted classification given, of whether heart failure or respiratory cessation occurs first. 506 records of cases which have ended fatally have been noted, and the figures are given as follows—Heart first in 143, respiration first in 59, both together in 46, no note in 211.

These figures bear out the view held by many anæsthetists; and, although there is much room for fallacy, there is little doubt, as is stated in the Report, that in "the large majority of cases the symptoms and phenomena detailed bear out the view that death was due to syncope, *in so far as the clinical evidence could decide the one way or the other*." Were correct observations made?

Nature of Operation.—It is necessary in a statistical statement to give the relative frequency of operations as well as the actual number of deaths, for the statistics to be of much value, but this is very difficult. It is interesting to note, however, that the following were the operations performed, or in the course of performance, when death occurred:—Extraction of teeth, 56; reduction of dislocations, 36; excision of joints, 28; operations on bones, 28; amputation of fingers, 21; of leg, 15; for fistula in ano, 20; operation on breast, 12; ablation of globe of eye, 12. The cause of death in these cases is discussed, and the editor is very impartial in his views. In regard to the deaths in the cases of reduction of dislocations he remarks—"A very remarkable note appears in some of these cases, which is so uniform as to enforce attention, since the cases occurred in very different places at various times. It is to the effect that at the moment of the reduction of the dislocation the pulse stopped, a fatal syncope having occurred. This is stated in eight cases." The remark is made that there was apparently a reflex cardiac inhibition as a result of imperfect anæsthesia. The analysis of the cases is most interesting, and many of the remarks of the highest value. One remark raises a very important medico-legal aspect of chloroform or other anæsthetic administration, viz., "There can be no doubt that unqualified persons are legally guilty of manslaughter if they give chloroform and the patient dies. No 'covering' by a medical man who is present could shirk the responsibility from the person who actually administers the chloroform." Is this the actual state of the law?

The abstracts of fatal cases under chloroform are given in three series—Series A, Royal Medical Chirurgical cases, 1848–1860; Series B, cases 1860–1891, published records; Series C, special reports: 1, hospital practice; 2, private practice. Series A, 86 deaths; Series B, 596; Series C: i., 27; ii., 7: total, 716 deaths.

Deaths remotely due to the Anæsthetic.—Series A, 4; Series B, 13.

"*Untoward*" *Cases of Chloroform Administration.*—That is, cases in which dangerous symptoms supervened, but which were recovered from—Series A, 16; Series B, 109; Series C: i., 61; ii., 62.

PART 2.—*Ether.*—Ether is considered in a similar way to chloroform. The number of deaths given is actually very much less, but in another part of the Report it is shown that the frequency of ether administration is very greatly less than that of chloroform. Regarding the primary failure of heart or of respiration, the figures are—Pulse failed first in 19 cases; respiration, 22 cases; pulse and respiration simultaneously, 10 cases. The series are as in chloroform, but no record of ether was kept by the Royal Medico-Chirurgical Commission. Series B and C, 79 cases of death.

Deaths remotely due to Ether.—Series B, 26 cases; Series C: i., 11 cases; ii., 3 cases.

"Untoward" Cases during Ether Administration.—Series B, 26 cases; Series C: i., 11 cases; ii., 3 cases.

PART 3—*Nitrous Oxide.*—Thirteen deaths under or after nitrous oxide are recorded.

Parts 4, 5, 6, and 7 are taken up with the various mixtures and more uncommon drugs used for anæsthetic purposes, while in Part 8 the conclusions drawn from the investigation are set down. This last portion of the volume is most interesting, and well repays perusal. The conclusions are fair and of practical value. The endeavour to show the relative number of deaths from chloroform and ether goes on proper lines, and for once it is admitted that the dangers of chloroform administration as contrasted with ether are not so great as is commonly stated. The investigation by *The Lancet*, as analysed and discussed in this work, should play an important part in bringing the much-vexed question of the relative safety of chloroform and ether to a conclusion, and the thanks of the profession are due to the editors of *The Lancet* for their disinterested and important work.

The Pathology of the Contracted Granular Kidney and the Associated Cardio-arterial Changes. By Sir GEORGE JOHNSON, M.D. London: J. & A. Churchill: 1896.

A STRIKING personality has been removed from the medical world by the death of Sir George Johnson. The day before his death his latest work, a short monograph on the *Pathology of the Contracted Granular Kidney*, was published. It bears ample evidence that the author's mental activity was fully maintained up to the time of his death. He reasserts his views that the thickening found in the arterioles is not due, as Gull and Sutton thought, to an "anterio-capillary fibrosis," but to an actual hypertrophy of the muscular wall. Most pathologists will agree with his conclusion here, but exception must be taken to the statement that a true arteritis obliterans does not occur in the kidney arterioles, for though the muscular coat is certainly hypertrophied, there is also in the cirrhotic kidney a distinct overgrowth affecting the inner coat and encroaching upon the channel of the vessel. The author advances the view that the interstitial changes are not due to an interstitial exudation, but primarily to an atrophic change in the tubules, the surviving nuclei of the intratubular epithelium giving the appearance of freshly-formed fibrous tissue.

The monograph is freely illustrated with woodcuts and plates. It will be read with great interest as the last work of the distinguished author.

Grundriss einer Klinischen Pathologie des Blutes, für Arzte und Studirende. Von Dr RUD. R. v. LIMBECK. Zweite Auflage. "Mit einem Beitrage, Die Gerinnung des Blutes," von Dr ERNST FREUND. Jena: Verlag von Gustav Fischer: 1896.

FOUR years have elapsed since the first edition of this book saw the light, and its increased size bears eloquent testimony to the advances made in that short time in the pathology of the blood. The principal changes made in the new edition are the fuller consideration given to the chemistry of the blood, both from the physiological and the pathological standpoint, and the addition of an excellent chapter on the Coagulation of the Blood, by Dr Freund. Many additional examples of blood analysis have been added in cases of numerous diseases, and altogether the book is a most valuable text-book of undoubted authority on the various states of the blood in health and disease. A proper appreciation of the different changes of the morphological and chemical elements of the blood is of the greatest importance, and there is no book of which we have cognisance which so ably supplies the information required. As all tissues and glands are nourished by the blood, it is an extraordinary thing that the general knowledge of it should be so slight, and that more importance should be ascribed to the pathology of the bodily frame than to that of the blood which gives it life. A careful perusal of this book will do much to clear away our ignorance of the subject, both for our own benefit and for the benefit of our patients.

Researches into the Anatomy and Pathology of the Eye. By E. J. COLLINS, F.R.C.S. London: H. K. Lewis: 1896.

AS the preface tells us, the substance of this book was given to the world already in the form of lectures delivered at the Royal College of Surgeons in 1894, and the present publication consists practically of these lectures revised and brought up to date. The name of Collins is already well known in connexion with the pathology of the eye, although the author is but a young man yet, for his researches have certainly been useful in assisting to a right understanding of a number of difficult points in the causation of disease and malformation of the globe. But there are one or two opinions stated with a simple bluntness in the book to which we do not see our way to give in our adherence without remonstrance. As worthy of special commendation in a work which should be read by all interested in ophthalmological matters, we would draw attention to the sections on the ciliary body and on congenital cataract. Mr Collins would have done well to have given a little more attention to the revision of the proof sheets.

Harn und Geschlechtsorgane. Zweiter Teil, Abteilung 1. Die Weiblichen Geschlechtsorgane. [*Urinary and Genital Organs.* Second Part, First Division. The Female Genital Organs.] Von Dr Med. WILHELM NAGEL. Pp. 159, 70 Illustrations, M. 7. Jena: Gustav Fischer: 1896.

THIS work, which constitutes the first division of the second part of the seventh volume of Prof. Karl von Bardeleben's *Handbuch der Anatomie des Menschen,* is more than a simple *résumé* of what has been written upon the anatomy of the female generative organs; for its author, Dr Wilhelm Nagel of Berlin, has succeeded in introducing into its pages not a little that is novel both in respect of the subject-matter and of its manner of arrangement. Dr Nagel is a gynecologist who has had large opportunities of clinical research in his position of assistant to Dr Gusserow (to whom, by the way, the book is dedicated); but, in addition, he has studied the anatomy of the female pelvic organs with all the advantages given by the access he has enjoyed to the Anatomical Institute of Berlin, and to the collections of preparations in the medical schools of London, Edinburgh, Bristol, and Paris. The result is an anatomical text-book of more than common interest and value.

The subject-matter is divided into four parts: in the first the position of the female genitals (and ureters) inside the pelvic cavity is considered; in the second the relations of the urino-genital organs in the pelvic floor (the urethra, vagina, pelvic diaphragm, and fascia, and Bartholinian glands) are dealt with; the vascular and nervous supply of the parts is described in the third section; and in the fourth and largest portion of the work the individual organs (ovary, epoöphoron, tube, uterus, vagina, external genitals, and mammæ) are fully discussed. Thereafter follows a most voluminous literature, in the compilation of which the author has put under contribution the libraries of Berlin and of the British Museum.

Those who are acquainted with Dr Nagel's excellent researches into the embryology of the pelvis will not be surprised to find that side of the matter largely and usefully represented here. For instance, the first pages are occupied with a discussion of the normal position of the body of the uterus, and then recourse is made to embryology in order to demonstrate why the uterus is normally anteverted with a slight degree of anteflexion. Unlike some German writers, Dr Nagel is most catholic in the use which he has made of anatomical monographs by authors of various nationalities; and a glance through the pages of the book shows a text bristling with references to non-German workers, prominent among whom are the investigators of the Edinburgh School; on the anatomy of the pelvic floor and of the structures in the mesosalpinx their work is frequently referred to. The material is well up to date, as is shown by the inclusion of Heape's views on the decidua menstrualis. The only fault we have to find is that the author in many cases states in too unbiassed a way the conflicting views of several writers, and leaves the reader quite in doubt as to his personal opinion. Thus, in regard to the question of glands in the mucous membrane of the tubes, Dr Nagel is content to express no marked persuasion. This, however, is of little moment in a text-book, and such this work professes to be. It may be noted, in conclusion, that considerable space is given to the discussion of the light which comparative anatomy has thrown upon the structures in the female pelvis; this is wise. The illustrations, many of which are original, are well chosen, and really elucidate the text; and the work, even in the matter of foreign names and references, is wonderfully free from typographical errors.

Surgical Diseases of the Ovaries and Fallopian Tubes, including Tubal Pregnancy. By J. Bland Sutton, F.R.C.S., Assistant-Surgeon to the Middlesex Hospital, etc. New and Enlarged Edition. Cassell & Company, Limited, London, Paris, and Melbourne: 1896.

We have already had occasion to speak in high terms of praise of Mr Bland Sutton's work on the ovaries and Fallopian tubes when it first appeared in 1891. The present edition retains all the good qualities of the original one, and in addition new illustrations of considerable value have been added, and the text has been brought well up to date. Amongst the additions to the subject-matter of ectopic pregnancy we note that the author does not believe in the occurrence of a decidual formation in the deep layers of the mucosa of gravid tubes, which has been insisted upon by some recent writers.

Sterility. By Robert Bell, M.D., F.F.P. & S.G., Senior Physician to the Glasgow Hospital for Diseases Peculiar to Women. London: J. & A. Churchill: 1896.

If, as has been said, all roads lead to Rome, truly in this book all chapters seem to end in the recommendation of the bi-weekly application of vaginal tampons containing glycerine or ichthyol. Now, ichthyol plugs are doubtless good in their way, but it would be wrong to regard them as a sort of cure-all in gynecological practice; and we venture to think there are certain conditions which still call for the knife. We are puzzled by the following statement, which occurs in the introduction to this collection of essays: "My view is that the functions of the ovum consist solely in providing the only pabulum which the spermatozoa can possibly subsist upon in their initial stage of existence." Does Dr Bell really mean to say that this is the only part in reproduction which the ovum plays?

Transactions of the American Gynecological Society. Vol. XX., for the Year 1895. Philadelphia: Wm. J. Dornan: 1895.

The twentieth annual volume of the American Gynecological Society's *Transactions* is of a somewhat unwieldy size, containing as it does, some 600 odd pages; but a portion of the space is occupied by a useful general index to the whole series of *Transactions.* With regard to the individual papers in the present instalment, we may specially mention the thoughtful Address on Lithæmia and Diseases of the Pelvic Organs, by the President, Dr Matthew D. Mann; Dr Howard A. Kelly's contribution on the Renal Catheter; Dr Whitridge Williams' on Deciduoma Malignum; and that of Dr Robert P. Harris on the Symphyseotomies of the United States and Canada. There are also many purely practical papers on operative procedures, and several of the discussions which followed these are well worth reading.

The volume contains, further, a graceful obituary notice of Dr William Goodell by Dr Barton Cooke Hirst, and from this it may be worth while to quote and ponder over the following sentences:—"A fact to which Dr Goodell was fond of referring, and of holding up half playfully as an example to his younger friends, was that his first medical article was written when he was 40 years of age. So well was he prepared for his first literary venture by personal experience and by profound research, that his paper on 'Accidental Hæmorrhage' remains the best upon that subject to this day." Yet he wrote not a little between the years 1869 and 1895, as the appended bibliography of 113 contributions amply demonstrates.

Clinical Diagnosis: A Practical Handbook of Chemical and Microscopical Methods. By W. G. Aitchison Robertson, M.D., B.Sc., F.R.C.P.E., F.R.S.E. London: The Scientific Press, Limited: 1896.

It is a question of etiquette how far the author of any book should publish the work of others without acknowledgment, and it is especially difficult to say what is the correct procedure when a compendium, however jejune, is given to the public. We notice that the author of this work says in his preface that only those methods are included which he has found easy, reliable, and rapid.

As the book is supposed to cover medical chemistry and microscopy in their entirety, we must presume that the author is an expert in all that wide domain, and vouches for every method described, often without any supporting reference.

Really it seems ridiculous to publish long series of scanty notes arranged in the form of a catalogue, on difficult processes which require a knowledge of investigation of no inconsiderable breadth. We confess that we have rarely seen such a futile production; for the student it is inadequate, for the practitioner of the old school misleading, and for any medical man of the present day superfluous. For any one unacquainted with a method, a detailed description of it and the precautions necessary is a *sine qua non;* for instance, a determination of the chlorides in urine quantitatively performed by one ignorant of the process, and relying on the details given here, would probably be quite erroneous. The estimation of chlorine requires many more precautions than the mere running of a solution of silver nitrate into the urine and chromate of potash, even if all the coagulable proteids have been removed beforehand. We are unable to make out whether Dr Robertson regards acid- and alkali-albumin as proteoses, albuminates, or albumoses (which he evidently looks upon as different substances from proteoses), or whether albumoses are peptones, or what they are; these bodies appear under different names in different parts of his book. Several of the tables printed throughout the book may prove of value for reference, but the details of the various methods are far too scanty to be of any use to anybody, and there are many errors which we have not space to mention here which might easily have been avoided. A student desirous of learning something about medical chemistry would do well to invest in a larger and fuller treatise than this.

The printing is excellent, but the illustrations are extraordinarily poor for a book published so near the close of the nineteenth century.

Hydro-Electric Methods in Medicine. By W. S. HEDLEY, M.D. Second Edition. London: H. K. Lewis: 1896.

IN this short treatise the author first discusses the physical principles of the hydro-electric bath. He then details the various kinds of current which are available, and (what is the best part of the book) the practical methods employed in their application, some interesting statements being made regarding sinusoidal currents. Finally, he summarizes the therapeutic indications for the different procedures. There are also chapters on local hydro-electric applications and on cataphoresis. For both of these Dr Hedley seems to entertain an esteem which few will fully share with him, especially when he suggests the use of the former in certain cases where the delay entailed in carrying out this treatment might place the patient in grave peril.

Like many specialists in the department of medical electricity, the author is inclined to be over-sanguine, and his conclusions lack scientific reserve. A more impartial advocacy would better establish the place which hydro-electric methods may fairly claim in the treatment of some forms of disease. The need for a work on this subject is shown by the fact that the book has now reached a second edition; but should it survive to a third, it would profit by considerable condensation; judicious pruning might reduce it to half its present size.

Manual of Practical Anatomy. By Professor CUNNINGHAM. Vol. I. Second Edition. Edinburgh: Young J. Pentland: 1896.

PROFESSOR CUNNINGHAM'S book is now so well known and so popular that few words are needed in regard to this new edition. After Ellis, it is the most accurate manual of practical anatomy in our language. The only drawback is perhaps its being too diffuse, which renders a second reading very tedious to the student. Exception might be taken to one or two of the figures, *e.g.* fig. 31 and fig. 43. Again, the following description of the female urethra as "fully an inch below the symphysis pubis," p. 375, scarcely corresponds to the figure of the female perineum on p. 367, in which the outline of the apex of the pubic arch is made to touch the orifice of the urethra. The book is well printed and well got up.

A History of the Chronic Degenerative Diseases of the Central Nervous System. By THOMAS KIRKPATRICK MONRO, M.A., M.D., and Fellow of the Faculty of Physicians and Surgeons of Glasgow, etc. Glasgow: Alex. Macdougall: 1895.

THE essays which make up this volume have already appeared in the *Glasgow Medical Journal* for 1895, and formed originally a part of the author's graduation thesis. They consist in short readable articles on the history of the chronic systemic lesions of the cord and medulla. The original value of the essays is enhanced by the publication of some notes by Prof. Gairdner on doubtful questions, notes made on the margins while reading the thesis, and reproduced *verbatim.* Anyone who wishes to refresh his memory about these diseases cannot do better than refer to Dr Monro's impartial and unvarnished history of the facts.

The Frog: an Introduction to Anatomy, Histology, and Embryology. By the late A. MILNES MARSHALL, M.A., D.Sc., etc. Edited by G. H. FOWLER, Ph.D., B.A. Sixth Edition. Revised and Illustrated. London: D. Nutt: 1896.

THIS revised edition of a well-known text-book on Biology will be welcomed by teachers of that science. The revision has been of a thorough character, and the illustrations are clearly executed.

The study of the frog is here shown forth in the light of an introduction to the Vertebrate type, and it is surprising what an amount of work the amphibian-dissection may be made to represent. But while for science-students pure and simple this work is well adapted, we should like to enter a very forcible protest against the elaboration of purely biological studies in the case of the student of medicine. That educational camel is groaning beneath the penultimate straw whose successor proverbially fractures its spinal column. In Edinburgh (and elsewhere) it seems to be deemed all important that a knowledge of the osteology of a cod's head (and of like pleasing objects) is essential for the mental welfare of *medicus in embryo.* Wiser counsels should prevail. Biology should be relegated to the purely preliminary stage of professional education, and the limits of the study should be circumscribed. No man can possibly be a better doctor because he can trace the development (mostly a matter of memory) of the gill-arches of the dog-fish, or demonstrate the frog's sympathetic; a task, this latter, which is said to have presented, in the past, a stumbling-block in the pathway even of professorial persons. The medical student who is compelled to get up everything which is included in the book before us will feel a disgust with zoology, because the acquirement of the knowledge represents a sheer waste of time. But judiciously limited in its scope, natural science exercises a humanizing influence, because it brings mankind into contact with Nature at her best,—only this phase of the science is scarcely that of the modern laboratory, which turns out simply a hard and fast type, that regards muscle and nerve alone, and forgets the life that is the real cause of all else in the biological world.

The Journal of Experimental Medicine. Edited by WM. H. WELCH, M.D., Baltimore. Vol. I., No. 1. New York: D. Appleton & Co.: 1896.

THE present rapid multiplication of medical and scientific journals is greatly to be deprecated. Could the energy dissipated in floating new periodicals be concentrated on the development and rearrangement of already existing journals, the awful difficulty of mastering the literature of medical science would be lessened instead of increased. We do not see the need of a Journal of Experimental Medicine. The title is too inclusive, and permits of the publication of too diverse matter between its covers. Nor is nationality an excuse for the launching of such a venture. Science should be cosmopolitan. It is by sinking national feeling and freely collaborating with one another, irrespective of race and country, that scientists can best help in propagating knowledge.

But having urged these objections to the Journal, we freely admit that the matter contained in this first part is of great interest and value. The papers are seven in number. Three are physiological, three are pathological, and one is pharmacological.

W. T. Porter gives a record of his further investigations on the Closure of the Coronary Arteries. T. E. Shields contributes a voluminous paper on the Effects of Odours, Irritant Vapours, and Mental Work on the Blood Flow; while Chittenden and Gies discuss the Chemistry of the Mucin of White Fibrous Tissue.

The pathological papers are contributed by Welch and Flenner, Hekboer and Park, and Williams. The first deals with the Bacillus Aerogenes Capsullatus, the second with the Vascular Changes in Tuberculous Meningitis, and the third with the production of Diphtheria Antitoxin. Cushny communicates a paper on the Pharmacology of Piperidine and some of its Compounds.

Fellow Travellers. By GRAHAM TRAVERS, Author of "Mona Maclean, Medical Student." Edinburgh and London: William Blackwood & Sons: 1896.

NOVELS and tales are not much in our line, but as it is now an open secret that "Mona Maclean" was written by a well-known member of the medical profession of the gentler sex, it was with much pleasure that we found this volume on the editorial table. It contains five short stories, all pleasantly and gracefully written. Each has a vein of sadness and an element of weak health cropping out in one or more of the characters. The hero of the first one is a very ordinary doctor; the pathos of his failures, and his rugged honesty and unconscious heroism, are idealized by a nice, clever woman. The second, called the Examiner's Conscience, is a short, but an exceedingly clever realization of the difficulties besetting an examiner who is young enough to combine both a heart and a conscience. The other stories are not so directly related to medicine, but indicate the habit of observation and the insight into character without which a doctor is helpless and an author is sure to be futile. We are certain that Graham Travers' stories will be read by the profession with pleasure and interest.

NOTE.—In the Review of Dr Murrell's excellent *Manual of Pharmacology and Therapeutics* which appeared in the June number of this Journal, objection was taken to the author's statement that *Pilocarpine* is a "liquid alkaloid like coniine and nicotine." In justice to Dr Murrell, we think it right to mention, that while distinguished authorities class Pilocarpine as a crystalline substance, others, no less competent, assert that it is a liquid. We are informed that in a recent endeavour to settle this moot point by special experiments, no evidence of crystallisation of the drug in question could be obtained. What is certain, however, is this—that all authorities agree in stating that Pilocarpine contains oxygen, and in this respect it certainly differs from both coniine and nicotine, in neither of which does that important element appear.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXV.—MEETING IX.

Wednesday, May 20, 1896.—Dr Argyll Robertson, *President, in the Chair.*

I. Exhibition of Patient.

Mr Joseph Bell showed a case of gunshot wound. His friend the subject of this accident had kindly come to show his arm; and here also were some Röntgen photos. He was shooting pigeons two months ago, when his rifle accidentally went off, and he was shot in the forearm just above the wrist. There was considerable hæmorrhage from the external aperture, and considerable shattering of bone. Mr Bell cut down and removed a loose piece of the radius, put the limb into position as well as possible with a good deal of trouble, and got it sweet. Fortunately it remained sweet. There was hæmorrhage from the posterior interosseous, but he plugged with iodoform gauze. It went on absolutely uneventfully without discharge, and healed quite rapidly and thoroughly. He thought the Society would be interested in the fact that the patient had got fair movement of his arm. Rotation was not quite complete, but the movement of the fingers was perfect. It was only about a couple of months since it happened, and it was improving in every way. Mr Dawson Turner had taken the photos. They had not accounted for the whole of the bullet. Some of it came away at the time of the injury,—the fragments of which were shown. The small pieces shown by the photos. had remained in the limb. A considerable amount of callus had been thrown out, and the end of the radius was broadened, notwithstanding the loss of substance that took place after the accident. A large piece of bone removed was shown. The patient had now a good grip with the affected limb. About a third of the bullet was taken out, and the rest seemed to have passed out at the time of the injury.

II. Demonstrations.

1. *Dr Norman Walker* demonstrated a handy method of using the flash light in photography. He said that what he wished to show was a powder adapted for taking photographs instantaneously. The value of photography had been demonstrated, and this method was exceedingly simple, and enabled one to take a photo. at any time of the year irrespective of the weather. Like other members of the Society, he invested at one time in an expensive apparatus

which cost a guinea. This flash light, devised by Dr Brock of Manchester and Dr —— of New York, was cheap and very efficacious. The materials were gun-cotton and this mixture of chloride of magnesium and chlorate of potash. (Dr Walker now applied a match to some of the powder, which had been placed on an ordinary fire-shovel, and thus demonstrated the flash.) The momentary flash was sufficient to take the photo. He had brought one of the photos. to show. It did not matter although the person who was being taken jumped. The light was held exactly over the camera.

2. *Dr A. B. Giles* showed a very simple and very cheap form of FLASH LIGHT APPARATUS. The whole cost less than sixpence. It consisted of a longish clay pipe with a small bowl, and having an indiarubber tube and ball attached to the mouthpiece. The magnesium powder was placed in the bowl of the pipe, and could thus by compression of the indiarubber ball be blown into the flame of a spirit lamp set in front of the apparatus.

III. ORIGINAL COMMUNICATION.

Dr George T. Beatson read his paper on THE TREATMENT OF INOPERABLE CASES OF CANCER, and showed three cases.

The President said he was sure the Society was deeply indebted to Dr Beatson for having brought before them these very interesting cases, and for his admirable exposition both of the actual cases and of the theory he had advanced in explanation of the grounds on which he had treated, and proposed to treat cancer, more particularly cancer of the mamma. There was no question that the operative treatment had had a marked influence on the progress of the diseased condition of the mamma. Whatever the nature of the change might be, the tumour had diminished most materially, and the patients' health improved. Whether these cases would command their belief in the great doctrine which he had brought forward, that cancerous affections might be due to some irritation from the sexual organs either in the female or in the male,—that cancerous conditions might in all cases be attributable to such a cause was perhaps, to say the least of it, doubtful. There were many irritative conditions of the generative organs which were not associated with cancerous affections of any part of the body, and the association with such conditions would require a large amount of further observation in order to be established. At the same time, he thought Dr Beatson was so far warranted, in that his idea was corroborated by recent investigations, which had shown that the nutritive conditions of the prostate, for example, were very materially influenced by the removal of the testes. That seemed to have been thoroughly proven; but it was a very wide and extensive theory which he had promulgated. He (the President) would be very glad to hear the observations of those able to speak with more authority than he could do on the nature of the theory and the facts which had enabled Dr Beatson to evolve it.

Prof. Simpson said that he agreed with the President that the Society was greatly indebted to Dr Beatson for the admirable paper he had brought before them to-night. They could all heartily endorse his closing sentences that they should regard it as a contribution made in good faith for the purpose of advancing science, and it deserved quite in an unusual way the expression of their thanks to-night. That was not to say, however, that he was prepared to adopt right off Dr Beatson's theory. Various points required explanation; *e.g.*, he told them he made experiments on rabbits, removing their ovaries, and finding that they got fat afterwards. Well, sometimes pigs when spayed might be fattened apart from lactation altogether. In the history of the female, when the ovaries began to lose their function a certain group of women had a tendency to *embonpoint*. That a deposit of fat took place had long been recognised, and that tendency asserted itself on the disappearance of the sexual function. Further, Dr Beatson had referred to his (Prof. Simpson's) paper, which had not quite regard to the point brought before them. His point was this:—That the patient who came under observation in the ward was judged to be subject to ovarian tumour. On opening the abdomen they found two tumours. Both ovaries had undergone cystic degeneration. There was an unusually large flaccid wall in the case of the left. The liver had quite distinct cancerous nodules in it. The patient recovered from the operation, but died a few months later from the cancer that they had seen in the liver. He did not know if cancer had ever been seen before in that particular way. On looking into the relation of ovarian disease to cancer, one found that a considerable proportion of patients operated on for ovarian tumour had died afterwards from cancer. Spencer Wells had called attention to it. On looking into the matter lately more particularly, he found that, when both ovaries were removed, patients died in a considerable proportion of cases from cancer which developed sometimes in abdominal organs, sometimes in thoracic and other viscera. He did not remember the exact figures at present. But if, say, 4½ per cent. deaths of women in any year were from cancer, then some 28 per cent. of those from whom ovaries had been removed died of cancer. Therefore when the ovaries had been removed, especially both, there was a special proclivity to cancer. Olshausen and others supposed it due to engraftment of peritoneum with some epithelial cells left there from operation; or that perhaps the tumours themselves, supposed to be innocent at the time, really contained some malignant element or malignant proclivity. His (Prof. Simpson's) case seemed to show that the tumours might be perfectly innocent, because the diseased ovaries were carefully examined, and the degenerations were of the simple cystomatous character, but associated with carcinomatous degeneration in the liver, and that led him to make the suggestion that abeyance of function in the ovaries, still more the removal of them, gave proclivity to the development of cancer. Dr Beatson's paper to-night did not affect Sir Spencer Wells' statistics. He (Prof. Simpson) quite well believed that the ovarian function modified in quite a distinct fashion the tendency to change in the mamma, and the cases of Dr Beatson were of the highest interest, especially the first case; but they had to keep in view that the patient had had other treatment as well; and while the thyroid extract had value in many directions, it was quite possible that it might exert an influence in this case, perhaps all the more when the ovary had been removed. There were various elements in the system that required to be taken into consideration. The ovaries, he had no doubt, exerted part of their function by their influence on the nervous system, also partly by their chemistry, whatever that might be. In the *Centralblatt für Gynäkologie* a writer had recently drawn attention to cases where women had suffered from giddiness, flushings, and distresses of the climacteric. He first administered ovarian extract, ovarian tabloids in some form, and had got one of his assistants to make experiments in transplantation of ovaries from one side to the other in rabbits, engrafting in peritoneum or in cellular tissues. The ovaries not only lived, but continued their functional activity. Their attention was thus called to the circumstance that the ovarian influence on the system—in this he hardly agreed with Dr Beatson—was not purely nervous, but was largely chemical, whatever the secretion or product might be. But that was a long way from saying that a change in ovarian function should start epithelial cells in other organs, even in an organ so closely allied to the ovary as the mamma, on a career of ovulation or development of ova. It was a kind of exaggeration, to say the least of it, to speak of cancer cells, although there was the high authority of Klebs for it, as being ova. He did not think any one would suggest that if conjunction could come about with spermatozoa from another individual that these would have any true ovular value whatever. At the same time they had a great deal to learn yet in regard to the development of cancer, and possibly also in regard to the development of embryonic structures generally. A very interesting discussion was in progress in a German Gynecological Association in regard to a matter discussed in London last week, of which they had seen no example in Edinburgh, viz., a deciduoma malignum, first described as a sarcomatous growth developed in decidual tissue; but some of his countrymen had alleged that this was a misnomer, and that it was not the decidua that underwent degeneration, but that it depended on some fragments of ova,—some villi of the chorion that remained in the uterus, which had gone on growing with a kind of independent growth, sometimes spreading into the vagina and going as far as liver and lungs; so that the kind of cells found in cancerous tissues ought not to be spoken of in such terms. At the same time the paper was one of great interest and would set other minds working, and they hoped that Dr Beatson would carry out his experiments. In that last case, *e.g.*, supposing the thyroid extract were mainly to receive the credit of it, it seemed to him a different variety of cancer. It was quite possible that thyroid extract might operate differently in different patients. In this case the woman was beyond the climacteric, a point to be carefully considered, because if it was a healthy ovarian action that was in some way stimulating the cancer growth—he understood that was the idea in Dr Beatson's paper—the fact remained that there was more tendency to the development of cancer after the ovaries had ceased functional activity.

Dr Black said that having once been a sanitary officer in the army he took a different view of cancer. Dr Beatson's view was highly interesting, being founded on physiological and pathological grounds. It was a hopeful paper.

Prof. Chiene remarked that he need not say he was very pleased indeed to rise and corroborate all that Prof. Simpson had said and what the President had said with reference to the value of this paper. It was valuable from the fact that Dr Beatson had been looking into this for twenty years before publishing anything upon it. He had taken care to go very slowly and gradually into it. As regards the theory, he (Prof. Chiene) was not going to enter into it. He could not follow it, could not understand it; but he would have them look at that preparation there, which was undoubtedly a carcinoma of the mamma, and he would say that every practical surgeon in the room, as he looked at that preparation and that woman there, was bound in inoperable cases of cancer to give a trial to removal of the ovaries along with the administration of thyroid extract, explaining to the patient what he was doing. There was a patient in his ward at present who had come from a distance wanting an operation. There was great pain and discomfort. The arm was swollen. The axillary glands were pressing on the vessels. The tumour was firmly attached to the chest wall. The difficulty in the case was that she was 40 years of age, still menstruating, but near the end of the menstrual period. Now, was he not justified in telling that woman what he had seen, and giving her an opportunity of judging for herself? Otherwise they knew what the result would be. She would die a painful death. The arm would swell, and the poor woman would be miserable for the rest of her life. He certainly thought, from what he had heard to-night, that he, as a practical surgeon, was justified in recommending the operation which Dr Beatson had recommended for cases inoperable by other means, and by which patients had been saved. He intended to try it when occasion arose; if this woman wished it he intended to try it on her.

With regard to the second case, they had only to look at the cast taken before treatment and the cast recently taken. No one could say there was a cure; but there was such an improvement that he thought it could very well be put side by side with the first case.

Mr Joseph Bell said that since he saw so many inoperable cases at the Longmore Hospital, this paper had given him the deepest possible interest. The first case he thought one of the most remarkable cases he had seen in his life. He knew Dr Beatson well. His diagnosis of cancer was thoroughly good. Other people had seen it. And yet that woman was cured. He did not say it would not come back. He quite agreed with Prof. Chiene that such a case ought to have a chance either of thyroid treatment or excision of the ovaries, or both. Of course, they all knew that the younger the patient the more inoperable the cancer was likely to be. The worst case he ever saw was that of a girl of 23. There was one operation. She recovered from it, but had a recurrence, and died in twelve weeks. She was a patient of Mr Syme's. He (Mr Bell) had her breast in his collection. The cases that came under his notice were generally inoperable and in old people, and his friend Dr Beatson would excuse him if he said that he had seen a good many very like No. 2, in which in the gradual process of shrinkage of the whole woman the glands diminished and the tumour diminished without any special treatment. No. 3 was very remarkable, but he had seen one or two even more remarkable. He watched one old lady in private for nearly fifteen years. She ulcerated, but did not lose flesh much, and not a gland was affected. There was no doubt of its being cancer. She died eventually of bronchitis. He was not so much impressed, therefore, with Nos. 2 or 3. But No. 1 was a remarkable bit of information, and he would like to add his own little quota of thanks for the admirable manner in which Dr Beatson could teach. He was able to follow every word, and that was not the case with all the papers one heard in that room.

Dr James Ritchie said he did not think Dr Beatson ought to be discouraged from operating on a case that had passed the climacteric. For some months past he (Dr Ritchie) had been studying a disease in which the ovaries seemed to have a trophic effect on bones and muscles, viz., osteomalacia. Fehling believed that the disease was a reflex trophoneurosis, having its source in the ovaries. Dr Ritchie did not believe that this expressed the whole cause, but the ovaries played a very important part. Many cases were cured by removal of these organs. Several cases had occurred after the climacteric in which the disease had made continual progress, but was cured by removal of the ovaries; one was cured about the age of 70. They would watch with very great interest the development of Dr Beatson's work. Dr Beatson had given them further proof that the generative organs had a profound influence on nutritional changes in the system generally. He did not think that they were warranted in going further than that.

Mr Harold J. Stiles said he need not say with what extreme interest he had listened to Dr Beatson's remarks on the treatment of cancer. He should like to congratulate him on the very clear way in which he had put his case, and also the very modest and cautious way. If he had betrayed any incaution, he (Mr Stiles) thought it was only in the field of hypothesis. One could not dispute the facts after seeing the first case. Dr Beatson was kind enough to show him the case about Christmas time, and even at that time he failed to discover any cancer. He did not believe that at present there was any cancer there. There were one or two little nodules, but these he had often seen. A little keloid tumour often developed at the seat of the wound. It was only the other day that Mr Chiene removed a carcinoma of the mamma, one or two nodules in which were undoubtedly carcinomatous, but others consisted of thickened cicatrix. He examined all the nodules with much interest. Some were undoubtedly cancer, but others were doubtful. He did not mean that the first case was not a case of cancer, but only to show that the little nodules were not cancer. He had not an opportunity of seeing the specimen removed at the time of removal of the ovaries until to-night, and from a cursory examination he had no hesitation in saying that it was a case of carcinoma. To come to Dr Beatson's theory, he (Mr Stiles) agreed with him in not regarding the so-called cancer organism as a parasite. During the last six months he had had some cases illustrating this in a very remarkable degree. They were not to be found in every case, but if one examined a large number of tumours, now and then they got hold of a specimen which showed them exceedingly well. He had photos. which he hoped to show either to this or to some other Society, with the hope, he would not say of proving, but of substantiating, his disbelief in these so-called cancer bodies. If, then, they went back to the foundation and asked what the cause was, he was afraid he did not feel inclined to attribute its outbreak to any influence on the part of the generative organs. He believed the disease broke out independently altogether of the genital organs. He was not surprised to hear Prof. Simpson say that cancer was very common in women whose ovaries had been removed. If the healthy organs had an influence like this, why should the disease in the mamma be so localized? Why should it not break out over the whole mammary area? He did not think Dr Beatson should use the word ova. It was simply that the cells referred to were more embryonic in type, and went on proliferating. Each tumour had more or less its own kind of malignant cell. All malignant cells were not exactly the same, but varied much in different cases. There was a birth-rate and death-rate of cells. They went on together. In the more slowly growing, in the atrophic tumours, and more especially in the ulcerating tumours, the death-rate was almost as rapid as the birth-rate, so that the tumour growth was very slow. He thought the influence of the removal of the ovary was simply to turn the scale between birth-rate and death-rate. It might check the former, and at the same time encourage degenerative changes or death-rate. It was much more likely to do that in the case of the mamma. He considered the first case a cure; but he believed the reason was that she was a young woman and had recently borne children. They knew that the ovaries had a decided influence on the functional mamma. He did not think they could expect that removal of the ovaries or testicles would have any curative effect on malignant tumours growing from other than the generative organs. He thought the treatment was well worthy of trial, more especially in younger women, and he thought also it should be tried on elderly women. It might diminish the activity of the proliferation and increase the death-rate, and so prolong the life of the patient.

Dr R. A. Lundie said that, in common with all who had spoken, he had listened with extreme interest to Dr Beatson's paper. He thought they were indebted to him for taking them so fully into his confidence, for giving them the whole history of his thought and work on this subject. He felt that that gave to his paper very much greater vividness and interest than it would otherwise have possessed to him (Dr Lundie). The position in which they stood with regard to all cases of cancer, except those which could be completely removed with the knife, was a very distressing one. They had to say to the patient that, according to the current view, cancer was incurable. They took away all glimmer of hope. He had noticed in recent years occasional cases in medical journals, apparently undoubtedly cancer, that had recovered. He hailed these cases with pleasure, as enabling him to say that such cases occasionally did recover. They had all seen to-night one case of undoubted cancer that had recovered, and he thought that would help them to try not to take away all hope from cancerous patients. In the treatment of cancer and all other diseases the medicine of most potency of all was, in his opinion, the medicine of hope; and Dr Beatson attacked these cases of his, of which they had seen the results to-night, not only with new treatment, but above all, with the feeling of hope in the success of his attempt. He (Dr Lundie) did not think they were at all in a position to say yet whether removal of the ovaries or the administration of thyroid had a decided influence on the cases. He thought it quite conceivable, at least, that the hope which from his hope Dr Beatson had succeeded in infusing into his patients had, at all events, a most important influence on the result; and he thought they were especially indebted to him for showing that there were cases of cancer which did recover, so that they might try all in their power, by his or other methods, to induce hope in their patients.

Dr Norman Walker said he would make just a few brief remarks. One was to express satisfaction that it was only in inoperable cancers that Dr Beatson recommended this treatment. One saw so many cases in which other treatment had been tried before the surgeon had his opportunity that it was very desirable to point out clearly that this method should be tried only in cases beyond reach of the surgeon's knife. The second point was in connexion with the third case shown to-night. That case seemed to him to be one of rodent ulcer; as did also Mr Bell's, and not ordinary cancer. (Mr Bell—"Mine wasn't.") Mr Bell's case had, at any rate, the clinical history of rodent ulcer. Dr Beatson's had the features of it, both clinically and microscopically. He thought that in that case removal might have been quite well done with the knife.

Dr Beatson, in reply, said he thanked them very much for the very kind reception they had given to his paper. They had entered into the spirit in which he hoped it was written. He need not go into detail, because the different speakers had gone over much the same ground. First of all, as to Prof. Simpson's reference to Spencer Wells' case of carcinoma following removal of both ovaries. He thought if these cases were looked into they would find that the carcinoma had appeared within a few weeks of the operation, at any rate in several cases. That afforded ground for saying that in all probability the disease was there at the time the operation was done. Cancer did grow rapidly, but not, like a mushroom, in a single night. He had looked into these cases. One died five years after operation, but they were not told how long the cancer had existed before she died, which was a very important point. The disease ran a slow course in some, in others a more rapid one. He thought that in the majority of those cases of Spencer Wells' it had been early and rapid, and also in the abdomen. He thought there were one or two in which mention was made of secondary deposits in bone and other organs, but it was not said whether they were of the same kind as those in the abdomen. He quite admitted with Prof. Simpson that his view about carcinoma was problematical and theoretical. But it was a point which might be worked out. At the present day much was being done on the subject of development. An ovary that was to all appearance healthy might have changes, especially chemical, going on that were not apparent. They must have a standard to which the ovary, when examined microscopically and chemically, must come up before they could say it was distinctly healthy. In regard to Mr Bell's remarks on the second case, in which he said that shrinkage of the tumour accompanied shrinkage of the patient generally, he watched that point. The patient on admission weighed 7 st. 8 lbs. Her weight at present was 7 st. 7 lbs., so that practically it had been a local shrinkage. Whether the shrinkage was entirely due to the atrophy of glandular substance alone he could not say. Each mamma was undoubtedly atrophied, but the general diminution in the size of the tumour, as apparent from the two casts, was very striking. He quite agreed with Prof. Chiene that the practical point was the one they had to look to. At the same time, he would not have it go forth that he stood there to advocate removal of the tubes and ovaries or testicles for cancer. It was a dangerous thing. But he hoped that cases on which it might be tried would be carefully noted, and the results carefully published. He had done the operation in some cases of carcinoma of the uterus. It took months before these cases showed appreciable change. They were all cases in which local removal was out of the question. To one he was giving pure ovarian extract. She was brought in very much exhausted from hæmorrhage last October. Since removal of the ovaries there had been a very remarkable condition of the tissues. The hæmorrhage had ceased, and the tissues had assumed a dried-up, almost shrivelled appearance, with freedom from discharge. Her weight was going down, and she had undoubtedly that yellow cachexia that they saw in those cases. Yet she had been keeping remarkably free from offensive fœtor and sacral pain. Altogether he was watching the case with great interest. He had not felt he had sufficient grounds in the case third shown for doing anything local. There were cases in which cutting into the tissues did undoubtedly favour the spread of the disease. If there were other cases he would, if the Society were willing, be very pleased to bring them before it.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LVII.—MEETING VIII.

Wednesday, 10*th June* 1896.—Dr J. Halliday Croom, *Vice-President, in the Chair.*

I. *Dr J. W. Ballantyne* exhibited a FŒTUS PAPYRACEUS or COMPRESSUS which Dr John Stevens had kindly given him for examination. It was accompanied by the after-birth, which consisted of two placental masses, with the smaller of which the fœtus papyraceus was connected. The mother was a vi.-para of about 35 years of age, and had had uneventful pregnancies up to the present one. In it she gave birth between the seventh and eighth months to a male fœtus which had evidently been dead for two or three weeks, and along with its placenta there came away the second smaller placenta and the fœtus compressus. It may be judged that the latter fœtus died about the third month of intra-uterine life, and the former about the seventh. There was no history of traumatism or syphilis. The larger placental mass measured 11 cms. by 10 cms., and the smaller 7 cms. by 8 cms., and the two were united by a narrow neck of placental tissue. The flattened fœtus lay in its own amniotic sac, and was attached to the smaller placental mass by a thin umbilical cord; it formed a flat cake of a somewhat ovoid shape, measuring 7·5 cms. in length by 5 cms. in breadth, and about $\frac{1}{2}$ cm. in thickness.

II. *Dr James Carmichael* read his paper on INDIGESTION OF BREAST BABIES, which appears at page 123 of this Journal.

Dr James Ritchie said that while he agreed in the main with Dr Carmichael regarding the influence of the higher, or university education of girls, he would like to acknowlege the distinct advance which had been made in their physical training. With regard to the constitution of nursing mothers, he found most trouble with those of rheumatic tendencies; their milk was not satisfying to the child, liable to cause flatulence and green stools. He found that in such cases, when the child suffered, it was benefited by putting the mother on anti-rheumatic treatment. Although nursing women could with advantage take and digest a larger amount of food than it was possible for them to do when not nursing, he occasionally found that, in their anxiety to have an abundant supply of milk, they so pressed their feeding as to induce indigestion, and thereby either diminished the flow or perverted the quality. The cure lay in regulating the mother's diet. Regarding the child, he would exclude from the category of indigestion those cases in which the baby drank quickly, overfilled its stomach, then rejected a large or a small quantity immediately it was taken from the breast. He found that babies had idiosyncrasies as well as adults; some of them were always ill after certain articles of diet had been taken by the mother; other children did not suffer although the mother took fruit or vegetables. He agreed with Dr Carmichael that babies should not be too frequently fed, and he thought it very prejudicial to teach a child that it would be nursed immediately it cried. Babies were liable to catarrh of the digestive organs from cold in the same way as older individuals; the treatment was to rest the stomach; and he had seen many cases of sickness, which the mother had vainly tried to stop, cured by withholding the breast for six or eight hours, and giving only a few teaspoonfuls of water every hour. Babies were also liable to flatulence and colic, because of the presence in their intestinal canal of micro-organisms. These were sometimes cured by a single dose of castor oil, although other cases were very troublesome.

Dr Keppie Paterson said that most had probably had experience of the benefits of regular nursing. The breast secretion was largely under nervous influence, and the amount tended to accommodate itself to the requirements of the child, the necessities of the child reacting on the mother. It was necessary also to examine into the saline constituents of both breasts, having seen a case at one of the Children's Polikliniks in Berlin, where a mother stated her child would not take the milk of the left breast as it was salt. Some of it was drawn off and tasted, and her report was found to be true. The infant was being nursed on the right breast, and its secretion seemed normal. The left breast was smaller than the right, but not atrophied. The subject of green stools had not been cleared up. Biliverdin was due to the oxidation of bilirubin; this meant the presence of air beyond the duodenum probably swallowed in excessive quantity along with the milk, and also some alteration of the bile, as the stools do not become green on exposure to the air.

Dr J. W. Ballantyne thought it was often most difficult to be quite sure that breast babies were really receiving only breast milk; he believed that in many cases mothers and nurses were in the habit of adding cow's milk, rusks, etc., as occasion offered, and yet the children were called breast babies. Indigestion might be due to the administration of sweetmeats. The medical man might be quite deceived. He believed the green colour of the stools was due to micro-organisms.

Dr Church spoke of the importance of mental tranquillity on the part of the nursing mother, and referred to cases where irritation or passion so altered the character of the mother's milk as to seriously injure the infant.

Dr J. Halliday Croom congratulated Dr Carmichael on his excellent and exhaustive paper on this important subject. There were, however, one or two points on which he did not agree with Dr Carmichael. In his experience, a well-managed hand-fed baby was just as good as a breast one, and thrived as well. For the mother's sake, no doubt, lactation was advantageous, favouring, as it did, the involution of the uterus, and was beneficial in other ways. Further, he found that many mothers were quite unable to nurse, however much they wished to do so, and this was especially the case among the better class of patients. He thanked Dr Carmichael for the paper.

Dr Rattray, Portobello, along with previous speakers, said he had derived great benefit from the interesting and practical paper just read by Dr Carmichael. In these cases he (Dr Rattray) invariably made particular inquiry as to the health, diet, and surroundings of the mother, and strongly advised that healthy mothers with plenty of milk should suckle their babies in preference to bottle feeding. He related an instance in which the infant was peevish and wasting on the bottle, but picked up and greatly improved when fed on its mother's milk exclusively.

Dr James Carmichael having thanked the Society for the reception given to his paper, alluded to the remark of Dr Croom with reference to the healthiness of artificially-nursed infants compared with breast babies. He agreed with him that equally healthy children could be reared by substitute feeding if carefully regulated, and among the better classes this could always be done; not so with the poorer classes, where there was a large mortality in bottle babies from careless feeding. He was glad Dr Church bore him out in regard to the importance of encouraging and inspiring hope in the nursing mother. With reference to the study of green evacuations, recent observations seemed to show that various forms of bacteria played an important part in the rôle of causation. He was glad to find that Dr Ritchie admitted that overwork in school girls often affected their general health and tone in such a way as to render them less fitted for the maternal duty of nursing in after years. He quite agreed with Dr Underhill that in those cases where there was an excessive quantity of milk the quality was so defective as to render the secretion unfit as a nutriment for the infant. He found in his own experience that bottle-feeding alternating with the breast gave satisfactory results for a time. In conclusion, he would remark that his object in directing the attention of the Society to this subject was to emphasize the necessity of advising a mother to nurse her child whenever possible, and also to prove that temporary disorders in the child associated with some alteration in the milk could in many cases be remedied by suitable treatment of the mother, thereby enabling her to continue lactation.

III. *Dr George Elder* read his paper entitled PERIPHERAL NEURITIS IN PREGNANCY.

Dr James Ritchie said that the Society was indebted to Dr George Elder for having brought this somewhat rare disease before them in so able a manner. He thought that he had made good his argument in favour of pregnancy as a cause of the disease, because for the production of certain nerve disorders there were required—*first*, a peculiar constitution of the nervous system which predisposed; *second*, some debilitating influence which lowered the nerve tone; *third*, some exciting cause. Dr Elder had indicated, in some of the cases referred to, the debilitating influences of repeated pregnancy and vomiting, and that during pregnancy there might exist in the blood some morbid material which was capable of acting as a poison on the nerve centres. He had further showed that when pregnancy was brought to an end the disease was recovered from.

Dr J. W. Ballantyne was struck by the difference in symptomatology which Dr Elder's case showed as compared with (*e.g.*) Solowieff's; so great was the difference that variations in the degree of the manifestations seemed scarcely sufficient to account for it. He had listened to the paper with very great interest.

Dr Keppie Paterson said Dr Elder's cases had commenced in the later months. He had a case beginning in the middle of pregnancy. She was a multipara with four children. There was no albuminuria, and it commenced before there could have been pressure on the renal veins; anasarca developed in the later months. At delivery she gave birth to twins. The disease seemed to be due to what Sir Andrew Clark called insufficiency of kidney action. In this case her kidneys were capable of excreting the effete products of one child, but were insufficient when there were two children *in utero*. The neuritis was a disease of the nervous system, but there must be a cause behind that, and it was probably associated with deficient excretory power in the kidneys.

Dr Milne Murray recalled a case which occurred in his practice some years ago, and which had a bearing on the relation of peripheral neuritis in pregnancy, though of a somewhat different nature to that observed by Dr Elder. Dr Murray was called to see a lady suffering from severe pains in her hands and feet, which at first he was inclined to suppose were of a rheumatic character. The patient, whom he had only seen once some time before, and with whose previous history he was very little acquainted, had a distinctly alcoholic look. Leaving town for a holiday after his second visit to her, the case was taken charge of by Dr Alexander Bruce, who soon diagnosed it as one of severe peripheral neuritis. On Dr Murray's return the symptoms were very acute. The husband declared it to be impossible for his wife to be indulging in alcohol, as he kept the domestic supply under lock and key. The symptoms continued with varying severity for many months, the most marked improvement having occurred when a nurse came into charge during a prolonged absence of the husband. On his return the nurse left, and the patient immediately became worse. She had been married for eight years, but had been sterile. About three months after the husband's return she became pregnant, and by the fourth month of pregnancy the symptoms had almost, and at the sixth month had altogether gone. She went on to the full time and was safely delivered, and since then—now six or seven years—there has been no return. The causation of the neuritis came out nearly a year after her confinement, when the husband discovered that she had been obtaining large quantities of Eau de Cologne from several chemists. The supplies were introduced into the house by the aid of a young servant, who was in her mistress' confidence, and who had acted as an intermediary; and the patient confessed that she had indulged very freely in this stimulant, and had disguised the odour by chewing coffee. It is probable that after the occurrence of pregnancy she was able to break off the habit, though she was never very clear as to when she gave up the indulgence.

Dr Lamond Lackie said that Dr Elder's cases recalled one of which he had charge some years ago. A lady when three months pregnant suffered from a severe attack of influenza, and thereafter developed all the symptoms of peripheral neuritis. She went from bad to worse, until at the sixth month she was delivered of a dead-born child. From that time she began to improve, and after eighteen months was nearly well. There was no doubt the attack of influenza was the primary cause of the neuritis, but the gravid condition seemed to aggravate the symptoms.

Dr Halliday Croom said he thought Dr Elder's paper most interesting. He had not met with many cases of peripheral neuritis during pregnancy, and he had never considered the condition as due to the gravid state. In all cases of neuritis he suspected alcohol as the cause, and generally he succeeded in discovering it. He observed that Dr Elder's cases were both multiparæ. He was sure the Society was very much indebted to Dr Elder for bringing before it this very interesting subject.

Dr Elder, after thanking the Society for the way it had received his paper, referred to the causal relation of pregnancy to peripheral neuritis. The number of cases of neuritis in pregnancy reported were few, because neuritis was comparatively rare in females as compared with males, and because cases where a distinct cause apart from pregnancy, *e.g.*, alcohol, was present, were not likely to be reported. That in many of the cases pregnancy was the exciting cause of the neuritis seemed to him to be beyond question, for as soon as the pregnancy ceased there was at once an amelioration. He did not mean by saying that there were cases of "neuritis of pregnancy," that a normal pregnancy could cause neuritis; but that apparently owing to some defect in the excretion of the increased waste products then in the system, not accompanied by any definite lesion at present discoverable in the excretory organs (or by derangement of the gastro-intestinal tract), pregnancy was the chief factor in the causation of some cases of peripheral neuritis; and he was of opinion that such cases, in a mild form, were by no means rare. There were so many possible causes of peripheral neuritis that it was extremely difficult to eliminate them all, but so far as was possible to him he had done so in the cases he had reported, and there remained no apparent cause but the pregnancy, and as they both improved after delivery, it was almost certain that the pregnancy had a definite and direct relation to the neuritis.

IV. Two papers entitled—(*a*) ABORTION OF FOUR FŒTUSES, one of which was monstrous; and (*b*) CYST ON THE BACK OF AN INFANT SIMULATING THE HEAD OF ANOTHER INFANT, by Dr Günsburg of Charkow, Russia, were communicated by *Dr J. W. Ballantyne*, with notes. These papers appear at pages 137 and 138 of this Journal.

V. and VI. *Dr Rutherford Morison's* CASE OF CONGENITAL TUMOUR ON THE FACE OF A CHILD (which appears at page 130 of this Journal), and *Dr J. W. Ballantyne's* paper on TERATOGENESIS, part iii., were held as read.

SESSION LVII.—MEETING IX.

Wednesday, 8th *July* 1896.—Dr A. BALLANTYNE, *President, in the Chair.*

Dr Marshall, Glasgow, showed a small TUBAL GESTATION removed before rupture.

A discussion on "Professional Secrecy *versus* Privilege in Obstetrics and Gynæcology" was opened by Professor Simpson and Dr Halliday Croom, and taken part in by Drs Hart, Underhill, Spence, Buist, Barbour, J. Ritchie, Rattray, Batty Tuke, Elder, Marshall, Milne Murray, and Mr Taylor Innes.

The Society thereafter dined together.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

ACTION OF DRUGS ON THE GLYCOSURIA PRODUCED BY PHLORIDZIN.—F. Coolen (*Arch. de Pharmaco-dynamie*, vol. ii., fasc. 3 and 4) records in detail the results of a number of very careful experiments on animals with respect to the action of various drugs on the excretion of sugar, in which artificial diabetes has been produced by the administration of phloridzin. The action of thirteen drugs was investigated. Of these, antipyrin and glycerine were found to be the most powerful in diminishing the amount of sugar excreted. Other drugs which also diminished the sugar excretion, but to a much less extent, were salicylate of soda, jambul, ammonium chloride, piperazin (in daily doses of 1 gr.), and bromide of potassium (in the dog). Drugs which appeared to have no influence on the sugar excretion were arsenic, sodium salts (carbonate, sulphate, chloride, and Carlsbad salts), piperazin (in doses of ½ gr.), and bromide of potassium, whilst opium actually increased the amount of sugar excreted. Of the two drugs which were found to be most powerful in reducing the sugar in the urine —namely, glycerine and antipyrin—possibly the influence of the former in the experiments recorded may have been due to its toxic action. But antipyrin appears to exert a beneficial influence in doses which are not toxic. Very careful observations were made on the action of antipyrin on the sugar excretion in a diabetic patient, and the tables of figures which are added show very clearly the distinct diminution of sugar produced by this drug, given in a single daily dose of 1 or 2 gr. for three days.—*British Medical Journal*, May 2, 1896.

METHYLENE BLUE IN MALARIA.—Böttger of Riel (*Deut. med. Woch.*, April 9, 1896) has within a short time treated seven cases with methylene blue in doses of 0·1 gr. in capsules, given six to eight times in the day. The rapid cessation of the attack was striking. In one case this occurred at once, but in the other cases only after a modified attack. Microscopic examination showed that the plasmodia disappeared from the blood later than the febrile attacks. A noteworthy change in the plasmodia was not observed. The duration of the treatment extended over eight days as a minimum, and thirty-three days as a maximum. It was determined by the disappearance of the plasmodia and of the splenic enlargement. The latter occurred in most cases. There was a relapse in only one case. The author saw no unpleasant effect upon the gastro-intestinal tract. Occasionally there was slight nausea at the beginning, but this was never marked. No irritation symptoms referable to the genito-urinary system were noted, yet methylene blue administered during long periods appears to affect the patient's general health. The changes in the urine and fæces are worthy of attention. The former is always green to dark blue according to the amount of the drug taken; the fæces are green, and only coloured over the surface. A short time after evacuation they presented green points, which became confluent later. The author concludes that methylene blue is an effective remedy in malaria, and perhaps the next most effective to quinine.—*British Medical Journal,* May 9, 1896.

THE PREPARATION OF ANTITUBERCULOUS SERUM AND ANTITOXIN.—Maragliano (*Il Policlinico*, May 15, 1896) describes his method of preparing antituberculous serum. One series (A) is obtained by concentrating the tuberculous material at 100° C., the other (B) by filtration through a Cumberland filter at a temperature under 30° C. Series A contains the bacterio-proteins, the tuberculin; series B bacterial secretions—that is, toxalbumins and a small quantity of tuberculin. The toxalbumins contain principles which have a sudoriparous and hypothermal action, but which cannot be separately isolated. For inoculation the author uses a mixture of the two series in the proportion of three parts of A and one part of B. The initial dose is 2 milligrammes per kilogramme, increasing daily up to 40 to 50. The horse gave the best results, and usually required six months' treatment to give a good quantity of antitoxin. The antituberculous power of this antitoxin is even shown for guinea-pigs and men. The minimum quantity of tuberculin capable of giving rise to fever in an apyretic tuberculous subject is neutralised by 1 c.cm. of the serum. Tuberculous subjects susceptible to tuberculin lose this susceptibility after a series of serum injections, even when given in ten times larger doses. *In vitro* the serum is bactericidal with regard to the tubercle bacillus; 1 c.cm. of the serum protects 1 kilogramme of healthy guinea-pig from doses of protein which would otherwise be surely fatal, and this is taken as a *standard* serum.—*British Medical Journal*, June 27, 1896.

INTRAVENOUS INJECTION OF NORMAL SALINE SOLUTION.—Berrin (*Revue de Chir.*, 1896, No. 1) reports a case of complicated hysterectomy in which life was apparently saved by the intravenous injection of three pints of artificial serum. The operation was performed by Pozzi and finished without difficulty. The same evening the patient was extremely nervous, and the next day vomited unceasingly. The pulse became rapid, and there was loss of control over the rectum and bladder. Symptoms of collapse rapidly developed. A little over a pint of artificial serum was injected in ten minutes, then not quite a quart in fifteen minutes. Recovery was prompt. Bouilly holds that the curative effect of these serum injections in cases of septicæmia, and particularly in acute peritoneal septicæmia, is sometimes astonishing. Monod states that he has several times in his service injected quantities equal to those employed by Berrin and Michaux. He constantly employs serum in practically the same dose in cases of grave septicæmia. He observed a few complications. One patient who had received a little less than a quart of serum was taken with violent vomiting. Peyrot speaks favourably of these intravenous injections. Ferrier holds that whether the injections be employed intravenously or subcutaneously their effect is the same. There is yet proof wanting to show that they are able to arrest an acute septicæmic process, although the method is distinctly rational. Segoud has for four years employed the subcutaneous serum injections, from two to three quarts being used. The results obtained were perfectly satisfactory. Poirrier holds that these injections re-establish the functions of the kidneys, the salivary glands, and the excretory organs. Ange had in his service a young man who as the result of a horse's kick developed grave septicæmia. For four or five days intravenous injections of artificial serum were employed in doses of twelve to fifteen pints in twenty-four hours. The patient recovered because of these injections.—*Therapeutic Gazette*, June 13, 1896.

PERMANGANATE OF POTASSIUM IN OPIUM POISONING.—Vutchetitch (*Sopski Archiv za Tzelokupno Lekarstovo*, Nos. 2 and 3, 1896) relates a case of severe opium poisoning in a boy 2½ years old, who accidentally swallowed "from 25 to 50 drops of tinctura opii simplex *Ph. Germ.*" About an hour later the writer injected subcutaneously a Pravaz syringeful of a 1 per cent. solution of potassium permanganate, and simultaneously gave the boy a teaspoonful of the solution internally. The subsequent treatment was limited to an internal administration of the antidote in the same dose hourly, and later on every two hours. About fifteen hours after the poisoning the child was found playing with other children, though looking rather pale and dull. On the next day the boy was quite well. The Servian paper contains an exhaustive analysis of the international (British, American, German, Austrian, Russian, etc.) literature on the subject.—*British Medical Journal*, June 13, 1896.

Apocynum Cannabium.—Gvozdinsky (*Vratch*, No. 19, 1896) has tried fluid extract of apocynum cannabium (15 drops three times a day) in seven cases of mitral and aortic insufficiency, with disturbed compensation. Considerable improvement was invariably noticed within two or three days from the beginning of the treatment. The cardiac impulse grew stronger; the pulse became more regular, fuller, and slower, its frequency in some instances decreasing from 130 or 120 to 56, or even 48 per minute in forty-eight hours; the blood-pressure rose; cyanosis and pulsation of the cervical veins vanished; the area of cardiac dulness decreased; the daily quantity of urine increased (in one case it rose from 450 c. cm. to 2800); the body-weight fell, the diminution varying from 13 to 21 Russian pounds. Like other Russian observers (Glinsky, Klopotovitch, Lapshin), the author never saw any unpleasant accessory effects from the drug.—*British Medical Journal*, June 13, 1896.

Balsam of Peru in Itch.—At the recent annual meeting of the Société Française de Dermatologie et de Syphiligraphie (*Sem. Méd.*, April 15), Jullien stated that he had used balsam of Peru according to the method followed by Peters and Tanturri in about 300 cases of itch. Balsam of Peru contains an essential oil the vapour of which is extremely toxic to the acarus. The patient is rubbed in the evening for fifteen or twenty minutes with the balsam; it is not necessary to rub hard, as the vapour is sufficient to kill the parasite. The patient sleeps afterwards in a night-shirt impregnated with balsam of Peru, and the next morning he is soaped all over and has a bath. This treatment is particularly useful in patients affected with secondary eczematoid and dermatitic lesions, and in weakly persons the subjects of heart disease; in pregnant women, and in nurslings.—*British Medical Journal*, June 27, 1896.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. Allan Jamieson, M.D., F.R.C.P. Ed., Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

Sleep in its Relations to Diseases of the Skin.—Bulkley hardly finds an allusion to this subject in the literature of dermatology, yet for twenty-five years he has made special notes with respect to this point, in the case of large numbers of his patients. He takes up, first, disturbances of sleep preceding or causing diseases of the skin. In discussing this he does not claim that such are often the direct causative agents, nor that their removal will necessarily be followed by recovery from the skin trouble. In a not inconsiderable number of cases of eczema he has known the eruption to first appear after a period of sleeplessness, which in different cases had occurred from quite different causes; and time and again he has known fresh attacks of eruption to come on, apparently from the same cause. Second, disturbances of sleep accompanying or caused by diseases of the skin. The first of these is itching. Patients affected with eczema may have sleep largely interrupted by itching. The greater distress from itching during the night arises from various causes, the exhaustion of the nervous system by the activity of the day, till again restored by rest. Also in sleep there is a certain withdrawal of nervous control, thus allowing special irritations to assert themselves. At the same period there likewise is absence of self-control, which by permitting of involuntary scratching evokes fresh lesions. Patches of diseased skin are apt to be irritable at night from the circulation of imperfectly elaborated blood, the effect of digestive disorders. Lastly, the warmth of bed favours congestion of the skin. In some instances, as in zoster, dermatalgia, and syphilis, sleep is broken by pain. Thirdly, means of removing disturbances of sleep in connexion with diseases of the skin. In considering these it is necessary to bear in mind, in the first place, the nature of physiological sleep, and the causes which disturb it; and second, to study the individual case, in reference to the existing conditions antagonistic to sleep. A vast weight of responsibility rests on those who in times past and present have vaunted this or that new soporific, which has too often been employed with but little thought, except to heed the enticing claims put forth by those who manufacture and push it for commercial purposes. Often when itching exists, and is apparently the cause which prevents or disturbs sleep, the real cause, in part at least, will be found elsewhere, and the patient will sleep well if that is removed, even in spite of the itching. These causes may be classed under the heads of —1, digestive; 2, toxic; 3, circulatory; 4, nervous (direct or reflex); 5, psychic; and 6, cutaneous. The toxic causes are not uncommon, and include not only the effects of the excessive use of coffee, tea, and tobacco, but also of the products of gout. Hypnotics should in such circumstances be rarely resorted to. In circulatory disturbances, if the head throbs, a warm bath or foot bath on retiring is often efficacious. Bromide with a trace of aconite is also useful. Where there is heart weakness and a general want of tonicity of the bloodvessels, digitalis, given before meals and at bedtime, acts better than anything else. The nervous causes are numerous, and require care in detection. In many cases the skin lesion is but one sign of a general breakdown. Good feeding, nerve tonics, and friction of the surface with a Turkish towel at night, after a brisk sponge with warm water, will often restore the nervous vitality and permit of sleep. In the cutaneous causes, it is utterly futile to prescribe preparations of opium to procure sleep, when this is disturbed by itching. Phenacetin and antifebrin are both valuable in pruritic cases, and so is paraldehyde, but sulphonal and chloral he considers unsatisfactory. In many cases, even where there has been considerable sleeplessness from itching, which local or general treatment fails to relieve sufficiently to allow of sleep, an excellent effect may be produced by a large warm drink on retiring, without the use of any hypnotic drug.—*The New York Medical Record*, Nov. 20, 1895.

THE POISONOUS STING OF THE "ELECTRIC LIGHT BUG" OR BELOSTOMA.—Schaefer of Kansas has noticed that during the warm, sultry nights of late summer, the electric lights of the streets attract swarms of insects, and among these a very large one, about 5 centimetres long, which has been popularly named the "electric light bug." When on an entomological ramble, he picked up one of these and experienced a sharp sting, giving rise to pain up the arm. On examining the finger he found an erythematous colouring with a minute dot in the centre. This he discovered was occasioned by the puncture of a dagger-like beak provided with poison glands, operating on the principle of a hypodermic syringe. The bug is carnivorous, and employs this weapon to paralyze its prey.—*The Med. Index*, Nov. 1895.

THE HUMAN EPITRICHIUM: ITS PHYSIOLOGICAL FUNCTIONS, AND ITS RÔLE IN THE CAUSATION OF SKIN DISEASES.—Ohmann-Dumesnil draws attention to this. Welcker found in the embryos of the Bradypus a continuous membrane overlying the hairs, which later investigation proved to be also present in other mammals and in man. It may be described, in general terms, as a temporary epithelial layer of the skin, which disappears at birth, when its functional necessity has disappeared. It overlies the stratum corneum of the epidermis, and is anatomically as well as physiologically distinct. Ohmann-Dumesnil has found it at all ages of the human embryo from two and a half months to eight. In the older, the formed hair and the epitrichial cells, which have been pushed aside by the growth of the former, are plainly discernible. An interesting question has been raised as to whether the epitrichium finally merges into the horny layer or not. This seems hardly probable. As to its office, it would appear that it is impermeable to water, at least it does not take up aqueous stains very readily; thus its function may be to protect the skin from maceration by the liquor amnii. This prevention of maceration is aided by another circumstance, viz., the retention of sebum upon the surface of the skin, effected by the limiting action of the epitrichium which overlies the sebum or vernix caseosa which has formed. Where the hair development is strongest, as the scalp, the epitrichium is first raised; and where the secretion of fat is most active it is raised to the greatest degree. Where neither hairs grow nor sebum is secreted, there is apt to be no separation at all, as occurs in regard to the eponychium in the case of the nails. Should there be an arrest of development of the hairs and sebaceous glands, the raising up of the epitrichium does not occur, it adheres to that overlying the stratum corneum, and it does not become separated from it for a period of time almost if not coincident with birth. When this process is a generalized one, the thickening of the horny layer is so also, and thus we have the different forms of ichthyosis known as xerosis, ichthyosis simplex, and congenital. These are simply different varieties of the same process, whereas ichthyosis hystrix and ichthyosis sebacea are somewhat analogous, but have supperadded an exaggerated secretion of sebum. In the former ichthyotic conditions there is lack of development of the sebaceous glands, in the latter a certain degree of development, their functions being stimulated by the pressure due to the thickening of the stratum corneum. In all forms of ichthyosis there is a deficiency in the number as well as the size of the lanugo hairs. The skin is harsh and dry, or rugous and spinous, and the best directed treatment can only mitigate this. If the epitrichium be adherent in localized areas only, there results a localized and limited ichthyosis. On the palms and soles it is greater than occurs on a flexor surface. Why it rarely affects the face and axilla is due to the rapid growth of the hairs and sebaceous glands in these situations, and the same may be said of the scalp. Lichen pilaris is probably due to limited persistence of the epitrichium. Ichthyosis has often been held to be hereditary, but it is more probable that it is but an anatomical peculiarity which is transmitted.—*Teratologia*, July 1895. This subject has been further alluded to by Bowen of Boston. In 1892 a case was brought to him which suggested the persistence of this embryonic epitrichial layer at the time of birth. This was a boy seven months old. The skin of the trunk, legs, and arms was slightly thickened, and scaling moderately in rather large flakes. Dr Bacon told him that when born there seemed to be a thin, perfectly smooth membrane covering it completely from head to foot, which was not detached, but closely adherent to the underlying tissues. It resembled paraffin paper. At five weeks it began to peel off in large strips. The skin beneath the membrane looked normal, but continued slowly to scale off. There had been no ectropion or cracks, as are common in ichthyosis congenita. Six months later it died of diphtheria, but then its skin was nearly natural.—*Journal of Cutaneous and Genito-Urinary Diseases*, Dec. 1895.

MYCETOMA, OR MADURA FOOT, OCCURRING IN AMERICA AND CANADA.—Hyde and Senn relate an instance in a man of 20, born in America of Bohemian parents. The disease appeared when he was 7, and at that time he was fond of wading barefoot in the Cedar river in Iowa. A hard nodule formed in the skin of the sole of the left foot. When the size of a shilling it was cauterised with nitric acid, and disappeared for a few years, but returned and involved the greater part of the anterior third of the foot in deformity with tumefaction. There was little pain, so that he could use his foot far better than could be expected from its aspect. The tumefied mass had a boggy consistence when handled, and its surface was irregularly beset with fungoid projections from the uneven surface. Each papilliform mass was tunnelled by fistulous canals, passing into a softish tissue, and a puriform secretion could be expressed from some. The general colour was rather greyish than of an inflammatory hue. The foot was amputated. The nodules and underlying part on section showed a spongy reticulated tissue, traceable down to the thickened periosteum of the bone beneath. Whitish pinhead-sized nodules were found in the meshes of the reticulum. In these there was leucocytic infiltration, and organisms consisting of numerous long, deeply staining threads, having a distinctly radial arrangement. The general characters of the organism resembled those seen in actinomycosis, but corresponded more closely to those described in mycetoma. Madura foot is apparently a purely local disorder; in the many cases on record no history occurs of cervical or thoracic complications, as in actinomycosis; mycetoma chiefly attacks the feet and hands, occasionally the ankles and knees. In India, where it is prevalent, actinomycosis is almost unknown; and the commoner cervical localizations of actinomycosis are never the seats of mycetoma. There are no black, red, and white (or pale) varieties of actinomycosis as in mycetoma, though upon this point it is to be admitted that there is a possibility that the appearance of the black grains in one variety of madura foot is due either to an accidental change in the fungus, or, as has been suggested, to a double infection. A good coloured plate and some illustrations of the microscopic appearances accompany this paper (*Journal of Cutaneous and Genito-Urinary Diseases*, New York, January 1896). Adami and Kirkpatrick publish an account of a previous case, which occurred in a French Canadian aged 21. The condition began ten years previously as a bluish spot on the inner side of the right foot, developing some months later into an open sore; afterwards a characteristic button came between the first and second metatarsals. There was swelling and deformity, with absence of pain. From the sinuses, and in sections of the affected regions, there were obtainable the granules of the fungus, which on microscopic examination resemble actinomyces in the broad details of their structure. The organism of the disease is apparently closely allied to the moulds, and presents a central dense mycelium of interlacing filaments, which at the periphery pass into radiating clublike bodies, yet there are differences separating it from the ordinary actinomycosis of man and cattle.—*Montreal Medical Journal*, January 1896.

PERISCOPE OF OBSTETRICS AND GYNÆCOLOGY.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E.

Quadruplets.—Dr Frank A. Stahl has recently reported a case of quadruplets, an occurrence met with about once in 400,000 births. The mother, aged 33, had had six previous single labours, and was 5 ft. 8 inches in height. There was no family history of multiple pregnancies. The first infant was a vertex presentation, the other three came by the breach, and with the fourth one came away the mass of secundines. The placental mass was made up of four small placentæ, and each infant had its own cord and amnio-chorionic sac. The first two infants were males, the last two females; their average weight was about 3 lbs.; and whilst the first three lived only sixteen hours, the fourth child survived for seventy-eight hours.—*Transactions of the Chicago Gynecological Society*, 1896.

Fœtal Peritonitis.—Dr Palazzi has met with an interesting case in which a new-born infant died a few hours after birth, and the autopsy revealed great abdominal distension with fluid, as the result of fœtal peritonitis. There had been also hydramnios and maternal jaundice in pregnancy, and the peritoneal cavity of the infant showed bile pigments. The author notes how fœtal peritonitis may be primary or secondary. In the former case it may be due, as Simpson long ago suggested, to hereditary syphilis, or it may have a traumatic origin; or, again, no cause may be discoverable. When secondary, it may owe its existence to congenital communications between the urinary passages or intestinal canal and the peritoneal cavity, or to the opening of abscess cavities into the sac of the peritoneum, or to malignant tumours.—*Annali di Ostetricia*, Feb. 1896.

Fœtal Peritonitis.—At a recent meeting of the Berlin Obstetrical and Gynecological Society Dr Gessner showed an infant the subject of fœtal peritonitis. The parents were healthy, and the labour, a footling, terminated spontaneously. The child showed marked anasarca and ascites. The abdominal organs were all strongly adherent; and the mass of intestines resembled the brain covered by a congested pia mater. The kidneys showed cystic degeneration, and there was transposition of the thoracic and abdominal viscera. There was no history of syphilis.—*Centralblatt für Gynäkologie*, March 7, 1896.

A Case of Subcutaneous Emphysema occurring during Labour.—Dr Macé records a case of this rare accident, which occurred in the service of Dr Porak. After two hours of expulsive efforts, the patient felt all at once a pain at the level of the left breast. Then, little by little, but rapidly, the neck and cheeks swelled so as to interfere with the opening of the eyes. It was evident that a rupture of one or other of the air-containing vesicles of the lungs had occurred, and labour was terminated by means of forceps, in order to prevent an increase in the emphysema. This unpleasant state of affairs passed off completely about the end of twelve days after labour. Dr Macé believes it good practice to give opiates after delivery in such cases, so as to obtain complete rest.—*Archives de Gynécologie et de Tocologie*, February 1896.

MODERN OBSTETRIC TEACHING.—In these days of strict antiseptic precautions in obstetrics one is apt to forget the old principle that "meddlesome midwifery is bad." The paper by Dr P. J. Farnsworth provides a useful counterblast to much that has been written and practised of late. Some passages from it may here be usefully quoted:—" I have been in practice a long time, and I may be behind the times, but I have passed my thousand point and have not lost three patients from septic fever. Such cases have never happened with me. A few women have died from exhaustion, and from complications with existing diseases, but even those cases have been few. My experience is not better than that of my neighbours who have been long in the practice, and who have brought judgment and skill to the work. Child-bearing is a natural act; in most cases is accomplished without much outside interference, and with ordinary care Nature so provides that recovery follows with little assistance. A practitioner enters to an obstetric case clean. He makes clean his hands, and does not neglect to clean his nails. His garments are cleaner than they need be for a drawing-room. The bed and the surroundings should be clean, although in many cases this is attainable only in degree. The first examination ascertains the condition and the progress of the labour. There is a flow of mucus for lubrication and for protection. There is no need of a pad to keep out 'flies' or microbes, the passage closes itself. Examination may be made often and without fear, to ascertain the progress, or to satisfy the patient that something is being done for her. The perineum is supported, and care is taken to prevent lacerations. The child is born; the after-birth comes away with a few pains and a little manipulation. If gentle traction on the cord is not sufficient, the physician tries Credé's method and external pressure. If not enough, he introduces the fingers, clutches the edge of the placenta, and brings it down. If there be adhesions or irregular contractions, he introduces the whole hand and takes away the secundines, being certain that no part is left. In nine cases out of ten nothing more is done, and recovery follows more quickly than where douches or injections are used. In many cases these obstruct rather than aid the natural process. Use sterilized water or antiseptic washes for the outside toilet, and require clean clothes and fresh linen so far as possible. Recovery follows in the majority of cases, even when no precautions have been used. Injections after labour has commenced remove the secretions which Nature provides for lubrication and for protection, and may do the same if used post-partum. Putrescent matter must be kept from the outside parts, and, if formed within, must be washed away. This occurs in few cases. Surgeons of modern times have demonstrated that, as has long been known, a wound 'done up in the blood' is in the best of antiseptic dressings. So the uterus, after the contents are removed and the clots have come away, is in condition that resists infection, and heals, or is restored, by first intention, as does a well-treated wound. Even when labour has been difficult, when instruments have been used and bruises and lacerations left, or where turning has been resorted to,—even then recovery takes place almost as quickly as in other cases."—*Medical and Surgical Reporter*, February 15, 1896.

OCCASIONAL MEDICAL PERISCOPE.

By A. Lockhart Gillespie, M.D., F.R.C.P. Ed., Medical Registrar of the Royal Infirmary, Edinburgh; Lecturer on Materia Medica.

Suprarenal Extract.—Injection of the extracts of the thyroid or suprarenal glands leads to increased blood-pressure, as Oliver and Schaefer first pointed out, an increase which they ascribed to stimulation of the peripheral vessels. Velich and Biedl have located the centre excited in the medulla. Fraenkel has separated from the suprarenal bodies a double salt of platinum analogous to neurin, which he calls sphygmogenium, from its power of raising the blood-pressure. Gluzinsky (*Wiener klin. Wochensch.*, 1895) has shown that the suprarenal extract is much more toxic than the extracts of other glands. Intravenous injection of 30 cgrms. to 1 grm. of a 25 per cent. solution in glycerine and water killed a rabbit of 1500 grms. in a few moments, while 6 to 12 grms. of other extracts did not produce death. The injection was followed at once by paraplegia, later by convulsions and opisthotonos. If only injected under the skin the animals survived several days, while after death nothing but parenchymatous nephritis could be found. Immediately after each injection a very marked increase in the blood-pressure was observed.

Gourcein (*Bulletin Acad. de Méd.*, 1895, p. 500) has separated from the same glands a toxic substance, soluble in alcohol, which caused death in rabbits from respiratory failure, had no paralytic action, but seemed to act on the central nervous system. Osler, in an important paper (*Internat. Med. Mag.*, Feb. 1896) draws an analogy between the increase of mucin in the body after the extirpation or disease of the thyroid, and the increase of pigment due to loss of the functions of the suprarenals. He gives details of five cases of Addison's disease, all of which ended fatally; and then of another similar case which was treated for eight months with suprarenal extract, with most encouraging results. A glycerine extract was used, one drachm of which equalled one capsule. Half a drachm was given thrice daily at first; in three weeks the daily dose corresponded to three glands. In addition to the bronzing, incipient pulmonary phthisis was present. In eight months the patient was active, instead of profoundly asthenic; in good spirits instead of distressed; while he had put on 19 lbs. in weight, and his lung condition had improved. No marked alteration in the pigmentation could be determined.

Lyon (*Revue de Thérapeutique*, No. 13, 1895), on the other hand, found little good from injection of an extract of the suprarenals in cases of Addison's disease in Germain Sée's clinique, probably, he thought, owing to the treatment having been begun too late. He refers to a successful case of Shoemaker's.

THE SERUM TREATMENT OF CANCER.—(1), Bacon, *Trans. Amer. Otological Soc.*, 1895 (noted in *Brit. Med. Journ.*); (2), Fausto Campanini, *Il Policlinico*, No. 13, p. 301, 1895; (3), Kopfstein, *Wiener klin. Rundschau*, 1895, No. 33; (4), Czerny, *Münchener med. Wochensch.*, 1895, No. 36; (5), Emmerich and Zimmermann, *Deutsche med. Wochensch.*, 1895, No. 43; (6), Arloing and Courmont, *Bull. de l'Acad. de Méd.*, May 12, 1896. Bacon reports a case of rapidly growing sarcoma situate between the mastoid process and the angle of the jaw, with involvement of the tonsil. The toxins of the organism of erysipelas and of bacillus prodigiosus were injected in doses of 1 to 2½ minims into the tumour, apparently retarding its growth and setting up local suppuration. The patient, however, died from hæmorrhage from the tonsil. The first injection of the toxins produced a rise of 2° to 3° in the temperature, some failing of the pulse, and cyanosis. After two weeks a similar dose produced no bad effects. In the discussion on the paper a case of sarcoma of the pharynx, successfully treated with the toxin of erysipelas, was mentioned. Campanini first refers to Coley's results, in 1894, by the use of toxins derived from the streptococcus of erysipelas and the bacillus prodigiosus. In 24 cases of sarcoma six were cured (20 per cent.); only two were not benefited in some degree. In the beginning of 1895 Coley published a series of 28 cases, of which four were treated by inoculation with filtered cultures, 24 with pure cultures. The results were good, three inoperable sarcomas being cured. Campanini repeated these observations on two cases of sarcoma, but found no improvement in the tumours, while the toxic effects on the patients after injection of the serum were so alarming that he stopped its use. Kopfstein used serum obtained from sheep which had been inoculated with erysipelas germs four days previously. The treatment of 13 cases of cancer, one sarcoma, and one malignant lymphoma with this serum was absolutely resultless, while the accompanying symptoms of poisoning were very severe. Czerny, employing sterile erysipelas-prodigiosus cultures, obtained good results in sarcomatous cases; carcinomatous growths were slowed, not cured. Notwithstanding Kopfstein's negative results, Emmerich and Zimmermann found that erysipelas serum acted beneficially on sarcomata and carcinomata, and ascribe this action to a power possessed by it of destroying the exciting cause of the malignant processes. Arloing and Courmont investigated the curative effect of ass's serum, either in the normal state or after inoculation of the animal with epithelioma juice. Transient local improvement was observed, but no lasting cure. The normal serum was the best, and might render inoperable tumours operable; further beneficial results were unlikely.

Part Fifth.

MEDICAL NEWS.

University of Edinburgh.—The following Candidates have passed their Final Examination for the degree of M.B. C.M. of Edinburgh University:—D. N. Anderson, James Anderson, E. Arkwright, John Ballantyne, *J. Bannerman, A. Baxter, J. E. H. Bennett, R. Bennie (M.A.), L. F. B. Biccard, J. B. Blaikie, F. J. C. Y. Botha, C. A. Bowker, E. Bramwell, W. H. Brendon, (B Sc.), *D. Brough, G. S. Brown, H G. Brown, C. A. Brugman, W. J. Buchanan, Wm. Buchanan, T. M. Callender, A. F. Cameron (M.A.), J. C. B. Carruthers, W. H. Carse, H. C. Colman, M. Corry, C. B. Crampton, E. Crerar, J. Davidson, P. Deb, H. Dewar, M. L. Dhinghra, A. Dickson, J. Dorman, H. Douglas, C. W. Eames, *J. Eason, A. H. Edwards, W. J. A. Erskine, A. W. R. Fletcher, *W. C. H. Forster, J. M. de Freitas, R. Gardner, Alexandra Mary Campbell Geddes, W. G. C. Geekie, (M.A.), Mohomed Abdul Ghany, W. E. Gibbons, C. F. Giddy, D. D. Gold, T. Grainger, L. Grant (M.A.), A. Y. Greenwood, N. Gunn, R. M. Hall, F. A. Hardy, *P. J. Henderson, *P. T. Herring, *J. T. Hewetson, L. W. Higuett, R. P. Hill, W. H. Hill, W. J. H. Hislop, J. F. Holden, R. K. Howden, J. A. Hunter, D. H. Hutchinson, M. Jackson, W. Jagger, C. H. Johnson, T. F. Johnston, H. I. Jones, G. King, R. W. Knox, C. H. Kruger, C. D. Lauder, G. Lawrence, J. L. Leadbetter, J. Lea, J. F. Lindsay, B. L. Livingstone-Learmonth, T. V. Lockhart-Mure, R. E. Loney, *J. R. Lord, A. P. Low, A. L. Low, J. D. M'Crindle, S. M'Donald, Jessie MacLaren MacGregor, G. W. M'Intosh, G. M'Kellar, J. Macmillan, Sreenagula Mallannah, J. L. Marjoribanks, J. Mason, F. H. Merry, R. A. Milne, W. M. Milne (M.A.), J. A. Milroy (M.A.), H. M. Morton, O. St John Moses, W. Mowat, J. Muir, *J. G. P. Murray, A. J. Orchard, W. D. Osler, J. Patton, J. P. Peterson, C. H. Phillips, E. E. Perritt, F. Porter, J. Prentice (M.A.), W. H. Pritchard, W. L. Pritchard, F. M. Purchas, O. Raitt, R. G. Ralston, J. A. Rees, J. H. Reynolds, J. Richards, W. T. Ritchie, W. H. Robb, N. H. Ross, D. R. Rowlands, J. H. Seon, J. T. Shirlaw, J. W. Simpson, W. A. Skinner, G. S. Small, F. Osmond de Souza, J. Stevenson, J. Stoddart, *A. C. Sturrock (M.A.), H. Y. Taylor, H. F. L. Taylor, D. G. M. Teague, H. T. J. Thacker (B.A.), A. G. P. Thomson, R. H. Walter, H. G. Waugh, G. A. Welsh, J. H. White, G. F. White, P. W. Wilkinson, F. M. Willcox, A. E. Williams, T. F. Williams, T. A. Williams, E. F. Wills, J. Wilson, W. W. Wood, W. A. Young, and *A. D. Yule.

Those marked with an asterisk have passed with distinction.

Royal Colleges of Physicians and Surgeons, Edinburgh, and Faculty of Physicians and Surgeons, Glasgow.—Of 87 Candidates entered, the following 41 passed their Final Examination for the Triple Qualification in Medicine and Surgery in July, and were admitted L.R.C.P.&S. Ed., and L.F.P.&S. Glasg.:—Henry David Lauchlan, Bombay; John Duncan M'Donald Newlands, Liverpool; Hamilton George Frampton Stallard, India; Leopold Emmanuel Braganza, Jamnagar; Fraser Dosabhoi Shapoorji, Surat; William Gordon Matthew Byers, Canada; Patrick Healen, Keady; Edward Joseph Howley, Newfoundland; Joseph Thorp Waite, Halifax; Robert Stothart Wells, Dumfries; Charles Edward Page, Edinburgh; Abraham Goltman, Montreal; Mars M'Clelland, Ontario; Walter Henry Grant Broyer, Melbourne; Annie Louisa Brennan, Bombay; Robert Weir Neill, Aylmer; Selik Wigoder, Wiekschna; Henry John Mackeson Wyllys, Great Yarmouth; Isabella Aitken, Berwickshire; Josiah Stephen Nedd, British Guiana; Sydney Octavius Hall, India; Maurice Hogan, Limerick; William Daly, Killarney; Maneck Dadabhai Naoroji, Bombay; Archibald Greer, County Armagh; Andries Lourens de Jager, Cape Colony; Charles Nathaniel Fraser Poole, London: Manak Turkhud, Bombay; Albert Robinson Wilkinson, Lancashire; Alexander Joseph O'Driscoll, Cork; Morris Frederick Horsley Gamble, Melbourne; Thomas William Pattinson, Windermere; John James Edgar, Daventry; Sydney Shakspere Broadbent, Yorkshire; Wallace Eales, Yorkshire; Percy Brooke Unwin, Wigan; John Titus, Newton, Staffordshire; Clarence Parker Windle, Hollin's Mount; William Henry Doran, Dublin; Charles St Hills Robinson, London; and Robert Bradshaw, Sierra Leone. 4 passed in Medicine, 1 in Surgery, and 1 in Midwifery and Medical Jurisprudence.

Royal College of Surgeons, Edinburgh.—The following gentlemen having passed the requisite Examinations, were admitted Fellows of the College on 30th June:—James Atkin Henton White, M.R.C.S. Eng., Nechells, Birmingham; Thomas James Henry, L.R.C.S.E., Sydney; John Allison, L.R.C.S.E., Fuller House, Kettering, Northamptonshire; James Francis Clark Hossack, L.R.C.S.E., Cape Town; George William Falconer Macnaughton, M.B. C.M. Edin., 15 Merchiston Terrace, Edinburgh; and Oswald Horrocks, L.R.C.S.E., 55 Queen Mary Avenue, Crosshill, Glasgow. Edward George Horder, L R.C.S.E., 18 Baskerville Road, Wandsworth Common, London, S.W., was admitted a Fellow without Examination.

Dr Lawrence of Montrose was presented with his portrait, painted by Mr Robert Gibb, R.S.A., on the occasion of his retirement from a practice of fifty-four years. The portrait was presented to Dr Lawrence at a very large meeting in the town buildings, presided over by Mr Douglas Johnston. The meeting was remarkable not only for the large attendance and the good feeling and affection shown, but also for the admirable speeches of the chairman and the honoured old man who for so many years had done such excellent work. All who know him will heartily endorse the wish that he may be long spared to enjoy his well-earned leisure and the observance and love of the "troops of friends" he has won for himself. His old neighbour and predecessor Dr Johnston of Kair was present at the meeting, and returned thanks in a characteristic speech to the sentiment, proposed by a clergyman, of the Medical Profession.

Third International Congress of Dermatology.—We beg to remind our readers that this Congress takes place this year in London, from the 4th to the 8th inst., and that the meetings will be held, as we announced in April last, at the Examination Hall of the Royal College of Physicians and Surgeons, on the Victoria Embankment. We understand that about 400 members, British and Foreign, have already signified their intention of being present. A very interesting programme has been issued by the Reception Committee, whose Secretary, Mr George Pernet, 77 Upper Gloucester Place, London, N.W., will have pleasure in furnishing information respecting the work of the various Committees, while all general information concerning the Congress may be obtained by applying to the Secretary-general, Dr J. J. Pringle, 23 Lower Seymour Street, Portman Square, London, W.

Congrès International d'Hydrologie, de Climatologie et de Géologie de Clermont-Ferrand, 1896.—Le quatrième Congrès international d'hydrologie, de climatologie et de géologie se tiendra à Clermont-Ferrand le 28 Septembre prochain. Voici les questions mises à l'ordre du jour et qui seront l'objet d'un rapport :

Hydrologie.—I. De l'action dominante et de la spécialisation des différentes eaux minérales, au point de vue thérapeutique. II. Que doit-on entendre par une cure thermale ?—Rôle respectif de la médication thermale et des médications accessoires. III. De l'action des eaux minérales sur la nutrition. IV. L'acide carbonique et les bicarbonates alcalins dans les eaux minérales et leur rôle thérapeutique. V. Etude critique de la législation des eaux minérales et de la police sanitaire dans les stations thermales. VI. Du captage des eaux minérales. VII. Stérilisation et embouteillage des eaux minérales transportées.

Climatologie.—I. Recherche des moyens propres à apprécier le degré de clarté et de coloration du ciel et leur influence en hygiène. II. Du régime des vents dans des régions déterminées et de leur influence sur l'état sanitaire. III. Des observations météorologiques, leur rôle dans l'étude des climats. IV. Conditions d'entraînement des poussières dans l'atmosphère.—Influence de ces poussières sur la santé. V. Que doit-on entendre par climat d'altitude ?

Quelles conditions ce climat doit-il réunir ? Préciser les principales indications thérapeutiques.

Géologie.—I. Influence des tremblements de terre sur le régime des eaux minérales. II. Gisements géologiques des principales sources du plateau central. III. Des eaux chlorurées-sodiques dans leurs relations avec les terrains lagunaires. IV. De l'origine de l'acide carbonique et des produits carburés dans les fumerolles et dans les eaux minérales. V. Des eaux artésiennes profondes, dans leurs relations avec certaines sources minérales.

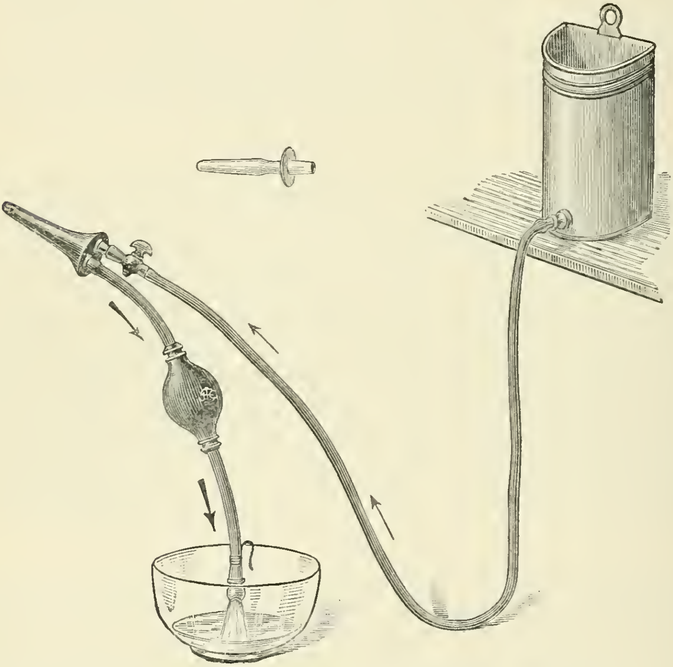
Une série d'excursions dans les stations thermales de la région centrale sera organisée et se terminera par une visite aux gorges du Tarn sous la conduite et les auspices du Club cévenol. Les Compagnies de chemins de fer Français ont bien voulu accorder aux adhérents du Congrès une réduction de 50 % sur les prix de voyage. Les personnes qui désirent y participer n'ont qu'à envoyer leur adhésion avec le montant de la cotisation (20 francs) à M. Doin, libraire-éditeur, 8, Rue de l'Odéon, Paris, trésorier du Congrès.

ASSOCIATION FRANÇAISE DE CHIRURGIE.—Le 10^{e} Congrès de l'Association Française de Chirurgie s'ouvrira à Paris, à la Faculté de Médecine, le Lundi 19 Octobre 1896, sous la présidence de M. le Professeur Terrier, Membre de l'Académie de Médecine. La Séance solennelle d'inauguration du Congrès aura lieu à 2 heures. Deux questions ont été mises à l'ordre du jour du Congrès:—1. *Thérapeutique chirurgicale des pieds bots.* M. Forgue, de Montpellier, rapporteur. 2. *Traitement des prolapsus génitaux.* M. Bouilly, de Paris, rapporteur. MM. les Membres de l'Association sont priés d'envoyer, pour le 15 Août au plus tard, le titre et les conclusions de leurs communications, à M. Lucien Picqué, Secrétaire-général, Rue de l'Isly, 8, Paris. Pour tous renseignements concernant le Congrès, s'adresser au Secrétaire-général.

"APENTA."—In the April number of this Journal we commended the special virtues of this new aperient water, and expressed the opinion that "Apenta" required only to be known to the Medical Profession to be extensively prescribed. We are pleased to learn that our opinion of "Apenta" as an important therapeutic agent is corroborated (in an article in the *Therapeutische Monatshefte* for June) by Professor Liebreich, M.D., of the University of Berlin. "The constancy of the Apenta water," he says, "makes the use of it indicated not only as an occasional purgative, but in systematic courses of treatment. It is particularly recommended for the regulation of tissue change in the most diverse diseases, in obesity, chronic constipation, portal obstruction, hæmorrhoids."

THE "ONAH" DOUCHE.—The "Onah" douche, manufactured by J. G. Ingram & Son, the London India-rubber Works, combines in itself two forms of vaginal douche. There is first of all a douche-can and tube from which the irrigating fluid passes through

a nozzle into the vagina; then in the second place this nozzle has attached to it a bulb and valves by means of which the fluid is aspirated from the vagina, and passes off by a second tube to any convenient waste-vessel. The mode of use of the instrument can be at once seen by a reference to the accompanying woodcut. The douche can be taken to pieces and part of it used as an enema syringe by the substitution of a bone rectal pipe for the vaginal nozzle. We wonder what led to the adoption of the word "Onah"; can it possibly be an obscure allusion to Noah and the cleansing flood of his days?



Anti-Syphilitic Serum.—Messrs Burroughs, Wellcome, & Co. have sent us specimens of liquid and dried anti-syphilitic serum. The theory at the bottom of the practice which has induced these manufacturers to exercise their ingenuity in this direction is as follows:—It is supposed that, as the lower animals are not susceptible of syphilitic infection, there must be something in their blood anti-toxic to syphilis, which, if injected in the form of serum into syphilitic patients, will cure the disease and confer immunity against relapse. We believe that it will be found that this treatment will prove useless, mainly because the lower animals cannot be inoculated with syphilis. It has also been suggested to take blood serum from adults and infants suffering from syphilis of the late secondary or tertiary and hereditary type for the purpose of this form of treatment. The amount of blood required to produce a dose of serum would be from 6 to 7 ozs., so that a problematical benefit to one patient would be obtained by a distinct loss and harm to another.

OBITUARY.

THE LATE DR GRAHAM WEIR.

On Monday, the 20th of July, Dr Thomas Graham Weir died at his residence in Heriot Row at the ripe age of 85 years. Although for some time back, owing to failing health and advancing years, Dr Weir had been gradually relinquishing active practice, he still retained on his list to within a short period before his death some of his patients, by all of whom he was equally beloved as a friend and esteemed as a medical man. Dr Weir was a practitioner of unquestionable ability; he had from the first devoted himself to obstetric practice and the diseases of children, in both of which departments his natural powers of diagnosis, matured by a very large experience, led to his opinion being regarded as of no small value among his medical brethren. A naturally unassuming and retiring disposition may account for his not taking that prominent place which he otherwise might and ought to have occupied among that brilliant galaxy of professional talent found in great names of those who were his contemporaries. Nevertheless, as one of the few remaining representatives of the older school of medicine in Edinburgh, his death will cause a blank which is in many ways difficult to be filled.

Dr Weir was the younger of two sons of Major James Weir, an officer who had served under Admiral Lord Nelson, having been present with him at the battle of the Nile and other engagements, while he had also taken an active part in the embodiment of the "Malta Fencibles," the colours of which regiment were only recently removed from Dr Weir's custody on their restoration to the island of Malta. His father was proprietor of the house and grounds of Easter Drumsheugh, then occupying the site upon which Lynedoch Place now stands—and it was there that Graham Weir was born in 1812. Subsequent to an attendance for some time at the High School of Edinburgh, he was educated at one of the Public Schools of England. On his return he at once commenced the study of Medicine, and graduated at the University of Edinburgh in 1835, his thesis being upon the subject of Hydrocephalus. After this he visited the more celebrated of the Continental Medical Schools, and at Paris formed one of a company of young graduates there resident at that time for the same purposes as himself, many of whom afterwards became distinguished practitioners in his native city—among them being our old and respected citizen Dr Alex. Peddie, the late Drs James Duncan, Patrick Newbigging, James Dunsmure, James Cox, Dr Macknight, and several others. In 1847 Dr Weir was elected a Fellow of the Royal College of Physicians. He had in his time filled the offices of Extra-Physician to the Royal Infirmary, Consulting Physician-Accoucheur to the New Town Dispensary, and was up to the period of his death Consulting Physician to the Royal Hospital for Sick Children. In the work of establishing the latter Hospital in 1859 he took an active part, being one of those promoters who, following the communications appearing in *The Scotsman* of that date, rendered much assistance in founding this charity. His wife, Miss Lumsdaine, of Perth, predeceased him about twelve years ago, no children being left of the marriage. Dr Weir was a man of kind and genial manners, and endowed with a considerable amount of humour and good fellowship. He was a member of both the old and characteristic Medical Clubs of Edinburgh—the Medico-Chirurgical and the Æsculapian. He was also a member of the Queen's Bodyguard, the Royal Archers. Dr Weir was a man of strong physical frame, and when an opportunity occurred could show no small amount of ability in all kinds of field sports. Among his own profession it may be safely averred that he had many friends and no enemies.

PUBLICATIONS RECEIVED.

P. Murray Braidwood, M.D., F.R.C.S.,—The Mother's Help and Guide. Second Edition. The Scientific Press, Lond., 1896.

James Braithwaite, M.D. Lond, etc.,—The Retrospect of Medicine. Vol. 113. Jan. to June 1896. Simpkin, Marshall, Hamilton, Kent, & Co., Lond., 1896.

Dr Leopold Casper,—Die diagnostische Bedentung des Katheterismus der Ureteren. Oscar Coblentz, Berlin, 1896.

The Battle of the Clubs—By the Special Commissioner of *The Lancet*. London, 1896.

Prof. Henry Corby, B.A., M.D., etc.,—Technical Education: A National Necessity. Cork, 1896.

Edinburgh Hospital Reports. Vol. IV. Edited by Drs G. A. Gibson, C. W. Cathcart, John Thomson, and D. Berry Hart. Young J. Pentland, Edin. & Lond., 1896.

W. E. Fothergill, M.A., B.Sc., M.B. C.M.,—Manual of Midwifery. Wm. F. Clay, Edin., 1896.

Professor Dr Oscar Hertwig, — The Biological Problem of To-day. Translated by P. Chalmers Mitchell, M.A. William Heinemann, London, 1896.

Professor Wilhelm His, and Professor Werner Spalteholz,—Handatlas der Anatomie des Menschen. Band I., No 2. S. Hirzel, Leipzig, 1896.

The Imperial Health Manual, being the authorised English Edition of the Official Health Manual issued by the Imperial Health Department of Germany. Edited by Professor Antony Roche, M.R.C.P.I., etc. Fannin & Co., Ltd., Dublin, 1896.

E. Klein, M.D., F.R.S.—Micro-Organisms and Disease. Macmillan & Co., London, 1896.

T. J. Maclagan, M.D.,—Rheumatism: Its Nature, its Pathology, and its Successful Treatment. Second Edition. Adam & Charles Black, London, 1896.

John C. M'Vail, M.D., D.P.H. Camb.,—Fifth Annual Report to the County Council and District Committees of the County of Dumbarton for year 1895.

John C. M'Vail, M.D., D.P.H. Camb.,—Fifth Annual Report to the County Council and District Committees of the County of Stirling for year 1895.

Medical and Surgical Reports of the Boston City Hospital. Seventh Series. Boston, 1896.

Stephen Paget, M.A. Oxon., F.R.C.S.—The Surgery of the Chest. John Wright & Co., Bristol, 1896.

Prof. Urban Pritchard, M.D. Edin., etc.,—Handbook of Diseases of the Ear. Third Edition. H. K. Lewis, London, 1896.

Sydney Rowland, B.A. Camb.,—Archives of Clinical Skiagraphy. Vol. I., No. 2. The Rebman Publishing Co., Limited, London, 1896.

Dr B. Scheube,—Die Krankheiten der Warmer Länder. Gustav Fischer, Jena, 1896.

W. Ramsay Smith, M.B. C.M., B.Sc.,—Angio-Neuroses, being Studies in Diseases of the Vaso-motor System. John Wright & Co., Bristol, 1896.

Transactions of the American Medico-Psychological Association at the Fifty-first Annual Meeting, June 1, 1895.

Transactions of the Chicago Pathological Society from Oct. 1894 to November 1895. Vol. I. Chicago, 1896.

Graham Travers,—Fellow Travellers. Wm. Blackwood & Sons, Edin. & Lond., 1896.

Twenty-Fourth Annual Report of the Local Government Board, 1894-95: Supplement containing the Report of the Medical Officer for 1894-95.

Part First.

ORIGINAL COMMUNICATIONS.

I.—THE BLOOD IN DIABETES MELLITUS.

By Alexander James, M.D., F.R.C.P. Ed., Physician to the Royal Infirmary; Lecturer on Practice of Medicine, Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh*, 4*th March* 1896.)

Most observers who have investigated the composition of the blood in diabetes mellitus have been met by the interesting fact that, contrary to what pertains in most chronic ailments and debilitating conditions, in this disease the number of red corpuscles and the richness in hæmoglobin of the blood is not only not in any marked degree diminished, but is usually increased above the normal. Leichtenstern has referred to this, and gives the results of the observations of many others.

To account for this richness in corpuscles and hæmoglobin, he and the others have favourably regarded the view that it is apparent rather than real,—that is to say, that it is due to the poverty of the blood in water, and its consequent concentration as the result of the polyuria.

Within the last three years I have had the opportunity of treating a greater than usual number of cases of diabetes mellitus, and I have taken advantage of this opportunity to look into this question as regards the blood.

Let me now direct attention to Table I., and first to the number of red corpuscles and percentage of hæmoglobin.

This Table shows that out of thirteen cases the corpuscles were over 6,000,000 in 5; 5,000,000 in 5; 4,000,000 in 2; 3,000,000 in 1. The hæmoglobin was over 100 per cent. in 3; 60 per cent. in 8; 50 per cent. in 2.

Bearing in mind that there are many sources of error in connexion with the estimation of corpuscles and hæmoglobin, I think yet we must conclude, as others have done, that in diabetes mellitus the tendency is rather to an increase in these constituents.

But, now, is this increase merely relative, is it the result of a lessening in the amount of water and consequent concentration? Were this so we should find a distinct increase in the specific gravity of the blood, but the last column of this Table, which represents the blood specific gravity (ascertained by Roy's method) shows no distinct increase.

TABLE I.

No.	Red Corpuscles.	Hb. per cent.	Sp. gr. of Blood.
1	6,730,000	66	1056
2	6,100,000	61	1059
3	4,800,000	58	...
4	5,250,000	60	...
5	5,600,000	65	...
6	3,550,000	52	1054
7	...	...	1060
8	5,300,000	75	1056
9	6,280,000	118	1055
10	5,380,000	96	1055
11	5,564,000	112	1056
12	6,200,000	112	1057
13	4,460,000	55	1054
14	6,000,000	96	...

I further endeavoured to get information on this point by investigating the effects on the blood of ingestion of food, and specially of water, and Table II. shows the results obtained in four cases:—

TABLE II.

	FASTING.			AFTER FOOD AND DRINK.		
No.	Red Corpuscles.	Hb. per Cent.	Sp. gr. of Blood.	Red Corpuscles.	Hb. per Cent.	Sp. gr. of Blood.
1	6,232,000	110	1055	6,100,000	106	1055
2	6,316,000	118	1055	5,056,000	100	1055
3	5,564,000	112	1056	5,372,000	106	1055
4	6,208,000	118	1060	5,440,000	104	1054

In this Table are shown, first, the results of the examination of the blood between 5 and 6 A.M., the patients having had no food nor water for some nine hours previously; and, secondly, the results obtained at 10 A.M., the patients having all breakfasted and drank copiously of water two hours previously. One of them had also drank, about half an hour before his blood was tested, three-quarters of a syphon of potass water.

Bearing in mind that the estimation of the specific gravity of the blood, like that of the corpuscles and hæmoglobin, cannot be regarded as being absolutely correct, we yet must recognise that these results show that in diabetes mellitus there is not the evidence of a concentration or thickening of the blood which we should have suspected.

My contention, therefore, is that in diabetes mellitus the tendency to increase in corpuscles and hæmoglobin is independent of the proportion of the water in the blood, and I would assert that this increase represents a *vis medicatrix naturæ*,—that is to say, an effort on the part of the organism to make up for the great loss of oxidizable material by an increase in the oxidizing power of the blood.

In support of this view I would adduce the effects of starvation on the blood and circulatory organs. In men deprived of food altogether it has been shown that the amount of corpuscles and hæmoglobin remains high for long periods, the weight of the individual diminishing rapidly. Further, an animal starved to death does not die until it has lost about $\frac{4}{10}$ of its weight, and the proportionate loss in the different tissues and organs is as follows:—Fat, 97 per cent.; liver, 53 per cent.; muscles, 30·5 per cent.; skin, 20 per cent.; intestine, 18 per cent.; bones, 13 per cent.; nervous system, 3·2 per cent.; heart, 2·6 per cent.

The meaning of this is plain enough. A starved animal lives on, as it were, by feeding upon itself, and the tissues which can be dispensed with more easily are made use of to feed those which are of more value. The circulatory system is manifestly of the greatest value, for it is by it only that the transference can be effected, hence the little loss of weight which it shows in starvation.

But in diabetes mellitus we have another phenomenon which we can use in favour of our theory. This is the digestive power. All who are in the habit of seeing diabetic patients at their food cannot but conclude that, whatever else their ails may be, indigestion is not one of them. The amount of meat and green vegetables which they consume at meals is evidence of this, and is to be interpreted as indicating that Nature is trying to compensate for the loss of oxidizable material through defective secondary digesting or assimilating power, by increasing the primary digesting power. Further, we often meet with patients who in the pre-diabetic stage suffered frequently from dyspepsia, and who when diabetes had supervened no longer knew what indigestion was. I hold, therefore, that we have in this again an example of the *vis medicatrix naturæ.*

It would be interesting to know if in diabetes mellitus the state of the blood showed any relation to the course, favourable or unfavourable, of the disease. Except that it is in my experience the rule to find that the blood richness is most marked in the more vigorous cases, I can say nothing on this point. I have the idea, however, that when a diabetic is beginning fairly to lose ground, the richness of the blood, in corpuscles or hæmoglobin, will be found to be lessening.

II.—OBSERVATIONS ON MENTAL AFFECTIONS IN CHILDREN, AND ALLIED NEUROSES.

By WILLIAM W. IRELAND, M.D. Edin., Mavisbush House, Polton.

(*Continued from page* 1004, vol. xli.)

ON INSANITY IN CHILDREN.

IN considering this subject we must ever bear in mind the great difference in the character of children from that of grown-up people. Many of the mental processes which play so important a part in the life of the adult are either wanting or rudimentary in the child. Some able psychologists have taken the trouble to record with apparent exactness the gradual evolution of the mental faculties in infancy, the date on which a child first sheds a tear, on which he smiles or grasps an object, or attends to light or colours, or can distinguish his mother from another person. Most people have had some opportunity of watching this progress in the course of their life. Some children are quicker or slower than others. The progress depends upon the bodily growth, especially the growth of the nervous system.

As we have already considered in a former paper the process of development in the new-born growing child we need not repeat it here. Suffice it to say that both structurally and physiologically the brain of the child is in a shifting condition. The cerebral tissues are more watery; the processes of growth go on rapidly; the number of blood globules is greater; the circulation is quicker. Rapid changes in the amount of blood entering the brain, rendered easier by the unclosed sutures and open fontanelles, answer to the sudden transitions of moods and passions in the child.

The first mental manifestations of a child consist of sensations and motions. The first sensations are passive, or associated with instinctive motions such as respiration or sucking. It is difficult to distinguish the first voluntary motions from involuntary ones; they are of a simple character, prefiguring processes important in after life, such as turning the eyes, grasping with the hands, or conjoint movements of the legs; touch and taste are exercised before sight as distinguished from the mere consciousness of light; and the sense of hearing comes last. Slowly the child entertains the idea that some things are apart from itself, that there is an objective world and beings like itself; then it recognises that there is a difference between living and dead objects. We do not hold that there are innate or connate ideas, but we think that there is a tendency which favours the evolution of certain ideas or ideas in certain directions. The statue does not exist in the stone block; but there are certain lines of cleavage which render more easy it being sculptured in given waves, curves and angles. Slowly does a child reach correct interpretations of the phenomena of Nature and learn to make use of the muscular machinery of the body. As ideas accumulate it confounds what it hears with what it has experienced, mixes its fancies and dreams and experiences in its memory. One sensation after another catches hold of his mind before he learns to concentrate his attention in distinct channels, so that children give a fugitive notice to things which adults habitually pass over. Sanity is generally regarded as the natural and healthy growth of a man's character, and insanity as something diseased or abnormal, and in the main this view is right, nevertheless we may gain clearer conceptions by looking on the matter in a different aspect. The sanity of a child is something quite different from that of a man; the senses in the child are most acute; pain, disgust, deprivation, are resented with passionate keenness and provoke bursts of wrath or weeping. When angry his whole frame is agitated, and he strikes inanimate objects and sometimes himself. With a deficient experience and imperfect judgment children believe whatever is told to them, invent fictions, and make grotesque assertions; they are subject to vain terrors, and smile at real dangers. Some children are apt to indulge in acts of cruelty to animals and gloat over tales of bloodshed. Thus if a man grew up with such feelings and views persisting, he would be regarded as insane. The purpose of education is to substitute some ideas for others, to add new ones in certain directions, to check some propensities, favour the growth of others, and in general to teach the youth how to regulate his actions in regard to other beings and the outer world. Thus sanity may be regarded as something acquired or something implanted in a man, and perhaps not always something entirely according to reason. We may recall that at certain stages of civilization some moral precepts are questionable, and some of our conventional notions are scarcely reasonable. Nevertheless, a man who should in public transgress our conventional rules and customs would likely be thought insane, much more likely than if he broke through some of the maxims of our moral code; the vulgar, indeed, often confound one with the other, and absurd customs once generally adopted often last for ages.

If we suppose excited or abnormal brain function from the very beginning we should expect to find such symptoms as excessive irritability or sensibility to painful impressions, morbid tastes, and perverted motor activity, restlessness, tremors, or chronic movements. Congestions are common in the rapidly growing brain of infancy; the new-formed nervous tissue is of an explosive nature, has the quality of convulsibility in a greater degree than in later life, hence children are more prone to epileptic attacks. One can easily see how such a constitution will interfere with the growth of the brain and also with the due acquirement of the use of the senses and the learning of the proper use of the muscles. Intellectual and moral disorders can only come later, for delusions and mental exaltation imply the possession of a certain number of ideas. Insanity in very young children is always accompanied or masked by idiocy. It is easy to see how excited or perverted function must so check and derange the growth of the brain that its complete and healthy development is impossible; thus though some forms of idiocy, such as genetous or hydrocephalic, may show general feebleness of all the mental faculties, the deficiency is often unequal. The faded lines are weaker in some places and more vivid in others, some faculties suffer less, and others take on a morbid action. In a large asylum for idiots there is always a great variety of nervous disorders, defective sensibility, dulness of hearing, choreic movements, athetosis, hemiplegia, paralysis agitans. There are few idiots who at one time or another have not had epileptic fits. The affections of the brain are not infrequently extended to the spinal cord. Scrofula and phthisis are common. Such an asylum is a large hospital. Leaving out of question the deficiency of intellect, a number of idiots may be regarded as also insane, though they are generally harmless, and owing to their softness and want of resource, are scarcely to be dreaded. The habitual epileptics, who are mostly all strange and droll in their ways of thought, association, and expression, are generally irritable and sometimes subject to fits of furious passion.

I have seen violent motor outbursts in idiots of low grade. In one case, well known to me, a child would rush about, leaping over or knocking against articles of furniture, or dashing her head against the walls or floor, so that, if left alone for a minute or two, her face and hands would be hurt and bruised. Along with motor restlessness there is often a strange indifference to pain.

IMBECILE LUNATICS.

I saw an insane idiot, twelve years old, who had been three years in the Royal Albert Asylum. He was imbecile, but could speak and answer simple questions; he was restless, noisy, and aggressive, and could not be kept in order in the school. He was little sensitive to pain, but afraid of the induced current. His attendant told me that he had pulled off the nail of the big toe with his teeth, and one morning, noticing that the boy's eyelids were swollen, his eyes being shut, he found that he had put metal buttons, taken from his coat, under the lids of his eyes. This boy did not take fits, but had maniacal exacerbations, after which he slept more than usual. The attendant said that during these turns he would tear his clothes and dirty the bed. Sometimes he would boast that he would do so and do it.

I was once called upon to see at her home a weak-minded woman, twenty years of age, rather good looking in face; teeth good, $\frac{14}{14}$, irregular; palate somewhat high. She had never menstruated, and was getting very stout; she could read, write, and sew a little.

She had been for about a fortnight in an agitated and melancholic condition. Her pulse was normal, and her face was not flushed; but she had an anxious expression. She asked me immediately in an excited manner to give medicine to save her little niece, said that her baby niece was dying, then said that one of her nieces had died last night. She said that she was perpetually haunted by fears that some harm would happen to her little nieces,—her sister's children,—who lived in the same house with her and were quite well. She was not violent, slept and ate pretty well, said she had seen a shark the other day and that it had bitten her. I prescribed something and gave some directions, and saw the case no more.

I had at one time at Larbert a remarkable trio who exhibited divers insane perversions of mind superadded upon imbecility. The first was a lad, N. C., believed to have a neurotic heredity, had fits in early years, and was of a very passionate temper. When under my care (in 1872) he was about twenty years old, his head was of the normal size, he had thirty-two teeth, pretty good, some were beginning to decay. Though he had a shambling gait, he was strong and healthy, could converse on simple matters, though he generally confined himself to one subject. He had learned in the joiner's shop to saw and plane tolerably; but could not be taught to count or to read. His attention was much directed to the construction of the house, much of whose building he had witnessed, and to the drains, the construction of which he understood wonderfully well. Though he could plan the making of some simple article in wood, he never had the patience to carry it out, but was diligent in pulling down anything. He was skilful in breaking up logs with an axe and wedge, and when no more such work was to be had he would prowl about to seize upon boxes to split up. His attention only followed his likings. When there were magic lantern exhibitions or theatricals, or some show or feast which attracted every one else, he might be seen calmly splitting wood in the moonlight. He took a fancy to have rabbits, got a wooden hutch made for them, and begged for broken victuals from the kitchen; he devoured the food himself and cried passionately when the animals died of starvation. Essentially one idead, he was easily irritated by any one suggesting something disagreeable to him. The younger boys soon found out how to tease him, which could be done in the simplest manner by saying that he would not get home for his holidays. His explosions of wrath were no doubt ludicrous, but threatened to be dangerous; he would give a shout, throw down his axe, and run after his tormentors. They generally escaped; when he caught them he handled them roughly. It never occurred to him to use his axe, otherwise his wrath might have been deadly. One boy was particularly skilful in tormenting him,—J. M., illegitimate, a pauper boarder with a rather small head and prognathous face. At that time he was about ten years old, a little broad-shouldered, sturdy, and active boy, with eyes always rolling about to note occasions for mischief. From his uncouth appearance he was sometimes called the "Ancient Briton." He would come to my window and say, "I have been a very good boy to-day. I have not stealed the whole morning. Will you give me a piece?" Once, happening to look out, I saw the Ancient Briton approaching the window with a lighted paper; the iron valve of the ventilator had become loose and the creature had filled the empty space with shavings which he intended to set fire to, and then, no doubt, close the valve and leave the blaze to appear through the floor. With such a genius for mischief he could not neglect N. C. He would steal up to him behind the stake paling and in a low voice announce some impending misfortune, repeating the words again and again; the effect was mesmeric. Although N. C. knew the boy to be a liar who had often deceived him, the idea suggested entered into his mind and occupied it entirely. He would yell and dance about, when his tormentor would run away in high glee. During these passions N. C.'s face, head, and neck used to flush red. It occurred to me to get cold water poured on his head, which caused immediate abatement of his fury. After this he would himself put his head under the pump and cry, "Pour water." This had always the effect of relieving him.

There was another inmate, a little, mendacious, mischievous fellow, who sought the society of the Ancient Briton. He evidently regarded the said Briton as a hero and a model, and sometimes assisted in tormenting N. C. It was difficult to keep them apart, and their commerce boded no good. This was a boarder from the middle classes. I gave no encouragement to his mother to place him in the Institution; but not being my own master, could not refuse boarders, and some parents seem to believe that the advantage derived from special lessons would outweigh the evil suggestions to which the weak-minded children became exposed, from being brought within contact of the residua of the worst quarters of our large towns.

The last exploit of the Ancient Briton was slipping down the railway embankment and putting stones on the rails. The attempt was discovered a few minutes before a train passed. The secretary of the railway company had refused to erect a proper barrier, saying that they were only bound to make a fence sufficient to keep out sheep. Explaining to that economical official that I was prepared when a catastrophe occurred on the railway, that he should have a due share of the blame, I induced him to get a high stake fence erected.

It would prolong the paper too much to give farther description of what have been called moral inbeciles. The title is so far correct that these children show from the beginning a proneness to evil, a callous selfishness, and a want of sympathy with other people, which is the most striking part of their character. The want of sympathy and the want of perception of moral relations seems out of proportion to the mental deficiency, but in all the cases which I have seen there was also weakness of intellect.

INSANITY IN CHILDREN UNCOMPLICATED WITH IDIOCY is so uncommon a malady that it is difficult to generalize about it or to make out what symptoms are most frequent and characteristic, and what forms are commonest. Two books on the subject are known to me, *Die Psychischen Störungen des Kindesalters*, von Dr H. Emminghaus, Tübingen, 1887; and *La Folie chez les Enfants*, par le Docteur Moreau (de Tours), Paris, 1888. On looking over these thoughtful and learned works, we soon see that the great majority of the cases described are taken from observations of others, many of them published simply because they are rare. Emminghaus finds all forms of insanity amongst children,—Neurasthenia cerebralis, Melancholia, Mania, Dementia, in its stuporose and agitated forms, Paranoia, Transitory and Circular Insanity, Epileptic, Hysterical and Choreic Insanity, Toxic Insanity. We have also cases of General Paralysis in children of ten or twelve. I have seen general paralysis supervening upon an imbecile boy, and several other cases are on record.

CAUSES.

A neurosis in the family of the parents is by far the most common predisposing cause of insanity in children. It may be owing to morbid products in the blood, as from the nephritis after scarlet fever. Fright appears to be a common exciting cause. Injuries to the head, sometimes dated years back, are often assigned as the cause of the attack. A case has been recently described by Prof. Furstner[1] of a boy of normal intelligence who sustained a severe injury to the head when nine years old. This was followed by loss of intellectual power, moral degeneration, dirty habits, and slight convulsive movements in the right arm. An opening was made in the skull, and a hard depressed portion of bone removed, on which he recovered.

Dr Reich[2] describes some cases of transitory insanity which seemed to be simply the result of exposure to great alternations of cold and heat. Four boys, from six to ten years of age, had been exposed in a sledge to cold of from 16° to 22° below zero; and being suddenly introduced into a room heated by a stove, they showed symptoms of mental derangement lasting for several hours. There were maniacal excitement, delirium, and hallucinations. This condition passed off with a long sleep, and on awakening they retained no recollection of the mental disorder, and complained of nothing but slight headache. These attacks are supposed by Dr Reich to have been caused by an alteration in the cerebral circulation, most likely hyperæmia, induced by the rapid change from cold to heat.

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[1] *Archiv für Psychiatrie*, xxviii. Band, 2 Heft, s. 506.

[2] *Berlin. klin. Wochenschrift*, xviii., 8, 1881, quoted in *Centralblatt für Nervenheilkunde*, No. 6, 1881.

CHARACTER AND SYMPTOMS.

As there is a certain persistence in the mental character of adults up to extreme old age, we can describe their derangements so that the sketch has a general resemblance throughout; but with children there is a continual growth and change, hence to give a fair description of the insanity of children one would need a series of shifting views of the most frequent symptoms for every six months. As we might expect, in the youngest children the manifestations of insanity are of a simple character, principally motor, great restlessness, sleeplessness, crying, and screaming; in older ones biting, scratching, tearing clothes, and running blindly about. The changes and reactions in a child's brain come rapidly, and pass away rapidly. The pulse quickens; the temperature rises; the face flushes; the child is in a fury, but this soon subsides, to be replaced by another mood. When it persists beyond usual limits it takes the form of delirium, indicating transitory congestions of the brain or a state of irritable brain of more or less duration. With children old enough to be called reasonable beings the passions and affections appear more involved in insanity than the intellectual faculties. Where delirium is absent, the behaviour is affected, the child is heedless of control and careless of reproof. The tendency to lying and stealing is much increased. While the senses with children are very active they receive their ideas—that is, the interpretation of sensations—from others, and mix up their dreams, memories, and fancies; their beliefs are ingenuous, errors are common, the critical faculty is little used. Hence delusions in the child would not attract much attention nor influence conduct as in older people. We now and then meet with transitory fits of temper and perversity in children which in adults would be put down as temporary insanity. Indeed, in some cases of insanity in grown-up people we hear rumours of strange affections and doings having been observed in their childhood. In general, even when derangement is very decided, there is a want of persistence in the mental delusions of children. Sometimes, however, a child grows up with an abnormal strangeness of thought, affectivity, and exaggeration or perversion in the motor activity. In such children the whole manner of receiving impressions, resenting injuries, moving and speaking, goes on after an eccentric fashion. When this occurs, especially if there be neuropathic affections in the family, the prospect is ominous, even if the child's intelligence be not marred in its growth and education.

The Germans have described a form of insanity to which they have given the name of *Primäre Verrücktheit*, in which the mental powers are warped from childhood. Strange notions, empty vanities and boastings, sickly suspicions, mark the child as different from others. The mind does not develop in a healthy manner. Morbid ideas of greatness, jealousy of neglect, fears of ridicule, and suspicions of unfairness and persecution, choke the healthy feelings of youth; and, as the individual grows older, pass into full-blown delusions, constituting a form of lunacy to which the name of Paranoia is given. I knew a man in whom I traced the characteristic symptoms unfolding from childhood. He died in an asylum, and his elder brother died insane thirty years afterwards.

Hallucinations occur especially in older children, sometimes brought out by the delirium of fever or by their sequelæ. Thus I have a note of a child of five years who suffered from tertian ague. During the febrile attacks he had delirium, and figures of black men appeared on the roof; he had frightful noises in his head. These attacks recurred eight or ten times. Under the use of quinine the ague disappeared and the delirium with it.

There is described[1] insanity following scarlet fever in a girl ten years old. It was ushered in by fits and loss of consciousness, after which there were great excitability, hallucinations of sight and hearing, verbigeration, and destructive tendencies and dirty habits. The child used to whirl herself about. She recovered after being thirteen months in the asylum. The author considers the insanity due to toxic products in the blood following nephritis.

In general, fixed ideas and delusions are not common with insane children; as in ordinary childhood, the ideas are mobile, and rapidly succeed one another. Inordinate mental excitement soon leads to exhaustion. The insanity of children who have reached the age of twelve differs less from that of adults. Its character may depend upon the greater or less maturity of their intellect.

Melancholia.

Dr Emminghaus found that out of 199 cases of insanity in children described by various writers, 24 were affected with melancholia. It seems principally to affect young persons above twelve years, and is generally of a simple character. The child gives up his play, neglects his lessons, avoids his companions, shows little affection for his parents, seeks to be alone, and in general loses interest in everything, and is in a depressed state of mind. Melancholy with delusions is rare with children.

Suicide in Children.

A frequent exciting cause of suicide in children is the fear of punishment and disgrace. Children are often subjected to great tyranny while their organization is very sensitive, and they are apt to plunge into actions without weighing the consequences; but hope is so strong and life so buoyant in the young breast, that we may safely conclude most cases of suicide in childhood indicate an insane condition of mind.

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[1] Dr Gerlach, in *Allgemeine Zeitschrift für Psychiatrie*, Band xlviii., Heft 6, and *Neurologisches Centralblatt*, No. 18, 1892.

In Italy Morselli found that out of 1000 suicides 5·3 per cent. were males from ten to fifteen, and 5·7 females out of 1000 cases of female suicides. From Morselli's tables it appears that in some countries the number of suicides under ten years of age is much higher: 5 6 in the 1000 in France. It is given as 3·6 in Saxony, 14·1 in Switzerland, 13 in Prussia, 19·6 in Austria, 23 in Hungary, and 24 in Würtemberg. As might be expected, self-destruction is less frequent in childhood than at any other age. The commonest period is from forty to fifty years. Females are less prone to self-destruction than males, but this is less marked in childhood than at a later age. In France the proportion of female to male suicides under sixteen years of age in the whole population is less by one-half; but taking 1000 male and 1000 female suicides under sixteen, the proportion is greater with females by one-third.[1] According to Morselli, suicides amongst children were from 1861–1870 rarer in England and Wales than in any other country from which he had statistics, being 4·6.

It is now increasing in frequency. "From 1865 to 1874 in England," Wynn Westcott tell us,[2] "there were 81 suicides," from ten to fourteen years of age,—45 male and 36 female. The ratio between shows female precocity. Child suicide is increasing in England and in almost all the Continental states. But what undoubtedly causes many cases now is over-pressure in education, while the education itself produces precocious development of the reflective faculties, of vanity, and of the desires. During the last few years there have been several English cases of children killing themselves because unable to perform school tasks. Dr Strahan, writing eight years later, observes:[3]—"In England and Wales for some years past the suicides of children under fifteen years have averaged over 10, while those of persons under twenty have averaged between 90 and 100 annually. It is significant of the increase of this most pitiful form of self-destruction that the Registrar-General had latterly found it convenient to add an extra column for the reception of self-destroyers whose ages are between five and ten years." "No one denies that child suicide is on the increase, and the high-pressure system of education is generally set down as the cause of the greater part of it. In support of this it is pointed out, that in those countries in which education is forced on most strongly, child suicide is found at its highest."

Dr Strahan, however, thinks that in the greater number of cases the strain entailed by what we nowadays call education acts only as an exciting cause “to bring out a hereditary tendency to suicide readily transmissible from the parent to the child. In time over-pressure may also become a predisposing cause.” Dr Strahan observes that “the worshippers of cramming seem to forget, if they are not ignorant of the fact, that the injury done by this system is cumulative, and transmissible from generation to generation. To increase the strain to just short of the breaking point is to take up an untenable position; for what one generation can just bear without apparent injury, two or three successive generations cannot.” Hence he thinks that our present system of cramming will bear bitter fruits in coming generations.

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[1] Socquet, "Étude Statistique sur les Suicides en France," *Annales Médico-Psychologiques*, September 1889.

[2] *Suicide*, London, 1885, p. 111.

[3] *Suicide and Insanity*, London, 1893, p. 175.

EPILEPSY and ECLAMPSIA are frequent causes of idiocy. The earlier the attacks in the life of the child the more destructive are their effects upon the mental faculties. Epilepsy occurs in the dog and other animals, and is apt to beget or to be associated with madness. Wildermuth, observing in above 200 cases, estimates the number of epileptic children in whom the intelligence does not seem affected as from 20 to 25 per cent. Nevertheless epilepsy is by far the most common cause of insanity in children, and where epileptic attacks occur eccentricities of conduct may be looked for, perhaps stealing, cruelty to animals, sleep-walking, or some strange outburst of temper or change of mood.

The following case has been seen by me in the Derby County Asylum. G. O., admitted 6th November 1895. No history of insanity or epilepsy in the family. A seven and a half months' child, born after a fall of mother. Now in good condition, aged six years; height 3 ft. 9½ ins.; weight 3 st. 7 lbs. I examined him on the 6th August last. A fair-complexioned boy apparently in good bodily health. He had grown an inch since entry. I made some measurements without finding anything abnormal in the head or body. Teeth good, $\frac{10}{8}$, two of the lower jaw lost. Palate high, glands of palate enlarged. Left lip paralysed. In speaking, “l” and “r” were replaced by “y.” Thyroid tumid, noticed to have enlarged since entry.

He made himself intolerable in his father's house. He took fits occasionally, and had that reckless impulsiveness often met with in epileptics. He used to fill his pockets with rubbish, ate garbage, was constantly throwing articles into the fire, would furtively strike his brothers and sisters, threatened to poke out his mother's eyes. In a report sent to the Commissioners in Lunacy, Dr Lindsay says that he he was “very restless, mischievous, and troublesome, constantly on the go, prone to interfere with other patients, and with a strong propensity to pick up rubbish and fill his pockets, and to throw stones or other things about; has thrown a stone at the window here. Laughs immoderately and without meaning, and screams at times; prone to ramble and chatter; says he is married, that he has been married a fortnight, and that he has been stopping in this house eight times. Admits sometimes striking his brother and sister; but does not appear to realize that it is wrong, and says his mother canes him for it. Has to be washed, dressed, and attended to. He might probably derive benefit from special training and education in a properly equipped institution. It is a matter for regret that such a case should be sent to a pauper lunatic asylum."

On the 6th of July he had an attack of *petit mal* and was dazed and stupid, but soon got over it. He was still very mischievous, used to throw stones at the patients or any one passing the airing court.

The boy answered questions smartly and chatted freely. He seemed a forward, shameless child. He said he liked being in the asylum, as there was always something to see, like cricket matches. He said he had four fingers. Next day he said he had five, but that he had four toes. He told me that he had twenty-two buttons in his pocket, and produced twenty-one.

In the *Chronique of the Annales Médico-Psychologiques,* March 1888, there is an account (quoted from paper of Dr Hermann Berger in *Archiv für Pyschiatrie,* Baud xviii., Heft 3, s. 872) of a girl of ten years old who was possessed with a fixed idea, which she could not banish from her mind, that she must kill her mother. She confessed this under great distress. The girl was nervous and irritable, and had had epileptic fits on two occasions. Sometimes epilepsy appears as the cause of insanity in a child whose normal development had been going on without any obvious check. The following is an instance[1]:—

A boy of eleven years of age, of a neurotic family, had fits, which began when he was two years old, after which he was subject to attacks of epileptic vertigo. He was an ill-grown boy of average intelligence. On Dec. 2, 1887, he was peeling potatoes with a knife, when he suddenly commenced to brandish it about. He then rose and threw himself upon some other boy, when he was mastered and carried away to his bed. In the evening he was brought to the hospital. Next day he again fell into a fit of fury, and on Dec. 5 he attempted to strangle a little girl younger than himself. More than twenty-four hours passed in alternations of extraordinary fury and profound coma, which generally lasted about twenty minutes. During the attacks of fury he rose and danced about, tearing and biting everything he could catch hold of. We are told, however, that he respected his own fingers, which he sometimes inserted into his mouth. On Dec. 13 these fits of fury had ceased, but were renewed on Jan. 8, when he had three attacks, which lasted some minutes.

Two remarkable cases are described by Dr Robert H. Porter,[2] Louisville, Kentucky. Ernest B., a boy, aged nine years, was run over by a street car. Four weeks after this accident he was observed sitting on a fence in a state of reverie; paid no attention to anyone. This lasted for half an hour. This attack was repeated the next day, and the attacks were associated with spasms. Three or four days after he passed into a state of mania, which lasted for a week. During this time he was very violent, often attempting to commit suicide, and to kill some member of the family.

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[1] Described by Dr Audry in the *Lyon Médical,* Feb. 26, 1888.

[2] *New York Medical Record*, Sept. 5, 1885.

"After the mania subsided, the spasms returned in the form of both *grand* and *petit mal*. Several days he would have as many as a hundred attacks of *petit mal* a day; then, again, they would be less frequent, but more severe; often fifteen or twenty attacks of *grand mal*. Sometimes instead of a spasm he would have a short period of trance, and while in this state he would have a vision of God in heaven with the holy angels, and would see the golden streets of the New Jerusalem. While in this condition he would usually talk all the time, telling them what he saw. After he returned to consciousness he would remember the vision, but did not know that he had been talking about it. Occasionally, instead of a spasm or trance, he would a short period of frenzy or epileptic *furor*, in which he would attempt to do violence to himself or to some one else. This condition of spasms, trance, and mania had continued for about three weeks."

Four or five days after Ernest had quieted down, his brother Claude had a severe attack of hystero-epilepsy; this agitated Ernest so much that the spasmodic troubles returned. He fell into a trance state, which continued for twenty-four hours, after which he recovered, without any further relapses. The brother Claude fell into a state of frenzy, barking, and biting the attendants. He had opisthotonos, emprosthotonus, and facial contortions, would or could not swallow anything. After this he passed into a state of trance, and then back again into a vicious and combative condition. Seven weeks after his first attack the boy was still in a state of trance, creeping about on his hands and knees, with his eyes shut. These two brothers were the only children in the family. There was a record of consumption in the mother's family, but beyond severe headaches she had no neuropathic affections.

TOXIC INSANITY.

In the epidemic of ergotism caused by the use of spurred rye in the food of the inhabitants of Frankenberg in 1879–80, described by Drs Siemens[1] and Tuczek,[2] many children were affected, and some of them became insane. Dr Tuczek did not find hallucinations common; but the children affected by the ergotism did not make any accurate distinction between their dreams and the observations of their waking moments. He gives the case of a little girl of seven years of age who had eaten of the diseased rye.

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[1] *Archiv fur Psychiatrie*, Band xi., Heft 1 and 2.

[2] *Ib.*, Band xiii., Heft 1, and Band xviii., Heft 2.

She had epileptic fits, became very talkative and restless, spoke to every one whom she saw, told absurd stories, laughed and made faces, was passionate, danced about, wept, and showed other signs of great excitement. Recovery took place in some cases; in others the children sunk into idiocy or dementia. Dr Tuczek observes the symptoms of insanity from ergotism have a close resemblance to insanity from epilepsy. The character of the fits was the same, *grand mal*, *petit mal*, intervals of rest, pre- and post-epileptic delirium, benefit from bromides; all found in both. The lesions in the brains of those who died were not of a distinctive stamp, but the root zone or columns of Burdach in the spinal cord were found affected, corresponding to the failure of the patellar reflex.

Insanity, generally taking the form of melancholia with a tendency to suicide, is known to follow the use of ill-ripened maize. It is accompanied by heightened patellar reflex with lesions in the lateral columns of the spinal cord. We are told that children are not exempt from this form of mental disorder; but in what proportion they suffer is not known to me. Dr Moreau[1] observes that many children are affected with pellagra; but of these affected by this form of intoxication no more than from 5·5 to 11 per cent. have been found to be troubled with pellagrous insanity.[2]

It has been ascertained that of those infected with hydrophobia there is a considerable proportion of children, in France from one-fourth to one-third.[3] This is probably owing to children being more defenceless and exposed to be bitten by dogs.

(*To be continued.*)

III.—GENERAL SECONDARY CARCINOMA OF THE BONES: OSTEOMALACIA CARCINOMATOSA.

By JAMES RITCHIE, M.D., M.R.C.S. Eng., F.R.C.P. Ed., etc. Pathological Report and Microscopical Investigation by JAMES PURVES STEWART, M.A., M.B. Ed., M.R.C.S. Eng.

(*Read before the Medico-Chirurgical Society of Edinburgh, 1st July* 1896.)

WE not infrequently meet with cases of primary and of secondary cancer of the bones, and probably if microscopical examination were made post-mortem in every case of secondary cancer it would be found that secondary infection of the bones is not nearly so uncommon as has been hitherto believed. But there are not on record many cases of general secondary cancer of the bones, and still fewer of such general infection associated with softening due to the morbid process, presenting features resembling osteomalacia—*osteomalacia carcinomatosa.* As the following case is an example of this rare condition it is of more than common interest. It is invested with additional interest because of the long time which elapsed between the removal of the primary focus and the manifestation of any symptoms which might be taken as an indication of secondary infection, because of the absence of deposit in the cicatrix and glands, and also because of the microscopical appearances in the bone.

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[1] *Op. cit.*, p. 111.

[2] Dr Adriani, in describing the patient in his asylum at Perugia, makes no mention of children, but he tells us that one-third of the pellagrous insane never enter an asylum. See *La Pellagra nella Provincia dell' Umbria.* Perugia, 1880.

[3] *Revue Mensuelle des Maladies de l'Enfance*, No. 10, 1887.

Mrs P., a lady of rheumatic constitution, was in 1878 confined of her second child. After this she enjoyed good health, but on numerous occasions had slight hæmorrhage from the left nipple. This breast continued healthy, but on June 18, 1885, she was seen in consequence of a small lump which she had newly discovered in the substance of the right breast. Two days later Mr Annandale removed the whole of that mamma and some of the axillary glands. The tumour was found to be scirrhous carcinoma. The patient was then aged 47. Recovery was good. The parts were examined at intervals, because if when she suffered from rheumatism the neighbourhood of the right breast was painful she became anxious; the cicatrix and adjacent parts continued healthy, there was no enlargement of glands, and no evidence of recurrence even up to the time of death in November 1894. On February 4, 1892, six years and eight months after the operation, she had an attack of severe pain in the back and limbs. The pain was produced by movement; the muscles of the back were painful on pressure, but in addition there were occasional spasms of pain, darting pain, independently of movement. As this was supposed to be rheumatic the patient was treated in accordance with that diagnosis. After a few weeks she seemed to be in her usual health. During the attack, although the urine was at first acid it became neutral, with a copious deposit of earthy phosphates, and these conditions remained for a considerable time. While at the coast in summer she suffered from pains and stiffness. In the autumn of 1893 she had much anxiety and fatigue in nursing her husband, who had a hemiplegic attack, and in October she had an illness similar to that of February 1892. From this she never completely recovered, always experiencing a slight amount of discomfort on movement; she was, however, able to go to country quarters during the summer. Early in October 1894, on her return, it was evident that she had lost considerably in stature; she was rather pale, with a debilitated appearance, and stated that during her absence she had suffered from bronchitis and asthma. On examination it was found that both the pelvis and thorax exhibited the changes commonly seen in osteomalacia. The pelvis was beaked, the spine twisted, and the ribs crowded together. The air did not enter the chest very freely, and there were a few sibilant râles. She gradually lost strength, was confined to bed, and on November 25, while being moved in bed, something was heard to crack. It was found on examination that the fourth rib on the right side was fractured. On November 28 she was suddenly seized with dyspnœa; the pulse, which had hitherto been fairly good, became extremely small and feeble. During the last days of life the pressure of the stethoscope on the ribs in front caused slight discomfort. Although death seemed to be imminent, she lingered for four days.

The diagnosis which was made was that the patient suffered from osteomalacia, and that death was precipitated by pulmonary thrombosis. The post-mortem examination was made by Dr Purves Stewart, who submitted the following report upon the pathological condition present:—

The clinical facts of this most interesting case have already been discussed by Dr Ritchie, and I propose to consider the pathological conditions found after death.

Permission was only obtained to examine the thorax, but even this limited examination yielded results which will go far to explain the remarkable clinical phenomena observed during the patient's life by Dr Ritchie.

Dr Ritchie has already referred to the peculiar deformity of the pelvis with its "rostrate" pubic symphysis so strongly suggestive of osteomalacia. He has also told you of the spontaneous fracture of the fourth rib on the right side which occurred some days before death, and I propose to-night to describe the pathological appearances found in the bones, and to offer an explanation why the fracture occurred where it did.

1. *Pathological Report.*

The heart was examined *in situ.* The right ventricle was moderately distended, the left ventricle firmly contracted.

The pericardial sac contained about six ounces of straw-coloured fluid.

The right auricle was filled with soft, dark blood-clot which extended through the tricuspid opening into the right ventricle. The tricuspid valve segments were slightly thickened at their free edges. The pulmonary valves were healthy. The pulmonary artery contained a long, firm, pale clot which extended from within the right ventricle as far as to the bifurcation of the pulmonary artery, and was firmly attached to its posterior wall. The left auricle was empty. The mitral valve segments were slightly thickened at their free edges. The left ventricle was contracted and empty. The aortic valves were healthy.

The parietal pericardium was quite healthy, but through it small nodules about the size of sago grains could be seen in the pericardial layers of both pleuræ.

Plate 1.

Fig. 1.

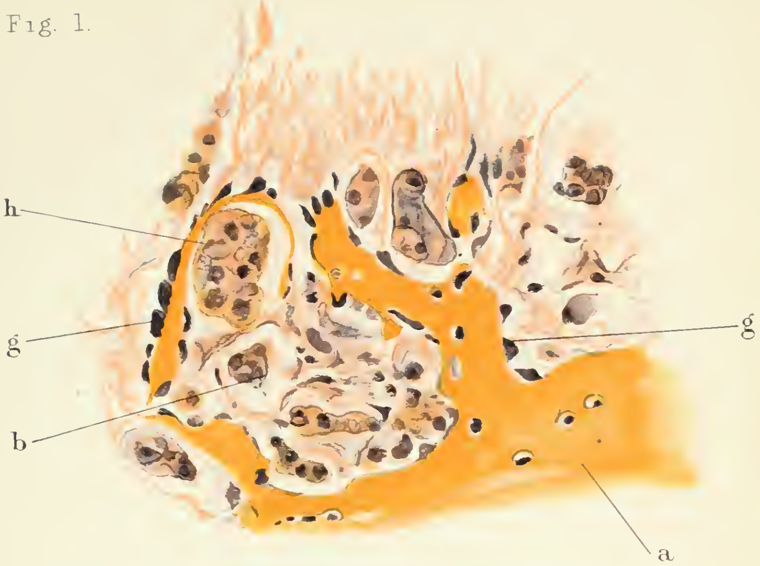
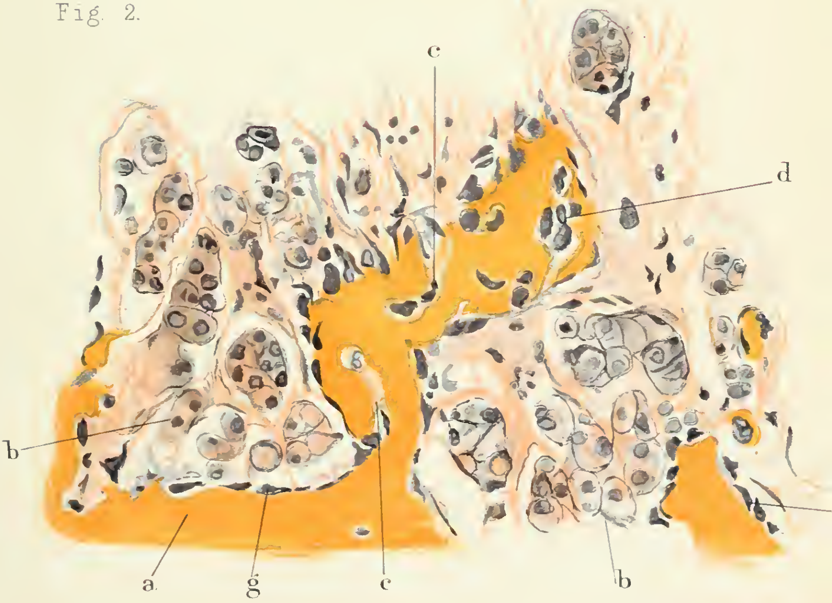


Fig. 2.

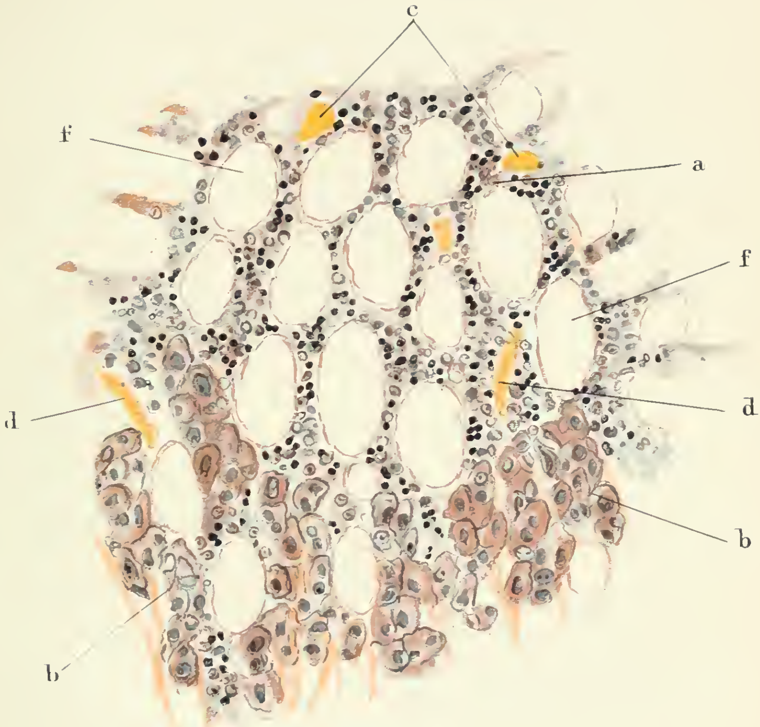


SECONDARY CARCINOMA OF BONE.

a. *Thin remains of bone.* b. *Cancer cells in columns.* c. *Bone corpuscles in tunnels which open towards the medullary cavity.* d. *Several bone corpuscles in one cavity.* g. *Bone corpuscles liberated and lying on inner surface of bone.* h. *Cancer cells in actual contact with bone.*

[illegible]

Plate II.



SECONDARY CARCINOMA OF BONE.

MEDULLA. a. *Medulla apparently healthy.* (*The greater part of the medulla seemed to be healthy*). b. *Columns of cancer cells invading the medulla.* c. *Spicules of bone.* d. *Bloodvessels.* f. *Fat spaces.*

W & A.K. Johnston, Edinburgh & [illegible]

The cellular tissue in the anterior mediastinum was somewhat emphysematous, but I could not trace any direct connexion between the gas in its substance and the lung air.

The right pleural cavity was entirely obliterated by fibrous, somewhat œdematous tissue. The right lung was congested and œdematous, especially in its lower lobes, and showed capillary bronchitis. The convex outer surface of the lung showed opaque nodules about the size of split peas here and there, and these nodules had bands of cicatricial tissue radiating from them along the surface of the lung, causing its surface to be puckered. No nodules could be found in the lung substance.

The bronchial glands were not enlarged, nor were any nodules found in them.

The left pleural sac contained about 30 ounces of blood-stained serum. The left lung was somewhat collapsed. Its parietal pleura was studded with numerous sago-like white nodules, as also was the visceral pleura, the latter more abundantly. The left lung was œdematous, and showed bronchitis, but had no nodules in its substance.

The ribs were all very much thinned, especially close to their sternal ends. The costal cartilages were much thicker than the ribs. There was a fracture of the fourth rib on the right side, quite close to the chondro-costal junction. There was no callus round this fracture, and the rib was so much thinned as to be translucent. So also were all the true ribs at their anterior ends.

I have made microscopic preparations of sections of the ribs, and under the microscopes several sections have been placed illustrating the chief points of interest. I also show some microphotographs kindly made for me by Dr E. W. Carlier, and two drawings which I have had made from these photographs. (See Plate I.)

On examining such a transverse section of a rib we at once observe that the bony substance has largely disappeared, and has been reduced in parts to a sheet not thicker, and sometimes even thinner than an egg-shell.

We farther find that this absorption of bone has taken place from within, so that whilst the outer surface of the bone preserves its normal contour, the rib is in reality a very fragile and hollow ghost of its former self.

In the field we can see an army of large cancer cells, arranged in columns or alveoli, with a little interstitial stroma, advancing through the bone marrow,—and the bone marrow in our case seems to play a very passive part; it is apparently quite healthy (Plate II.), and its cells have neither proliferated nor broken down, they are simply pushed aside by the advancing cancer cells.

But when the cancer cells reach the inner surface of the bone much more active pathological reactions are seen to occur. The bone is absorbed, and it is absorbed in two ways :—

(1.) Firstly, by direct action of the cancer cells upon the bone substance. This is well seen in Plate I. (Fig 1, *h*.), in which we see a cluster of cancer cells lying in a little bay of bony substance which they have excavated for themselves.

(2.) There is a second way in which the bone is absorbed, and that is by the bone-corpuscles themselves. As the cancer approaches the inner surface of the bone, the bone cells, especially those nearest the advancing cancer, begin to digest the walls of the little bony chambers in which they lie. This is well shown in Plate I. (Fig. 2), in which we see the large cancer cells advancing in columns towards the bone, but separated from it by a little stroma. The cancer cells, therefore, are not yet actually in contact with the bone, but already we can see active changes in the adjacent bone. Some bone-cells are seen to be lying in spaces much too large for them; others are seen to have dissolved away the bone lying between them and the medullary cavity, and they lie at the bottom of tunnels which are open internally towards the medullary cavity of the bone. Finally, we see other bone-corpuscles fully liberated and lying upon the inner surface of the bone. What becomes of these liberated bone-corpuscles I cannot say.

Osteoclasts—the ordinary giant-cells of bone—are conspicuous by their absence.

2. *Spontaneous Fracture of Rib.*

In this case, as Dr Ritchie has described, the signs of fractured rib were quite distinct for several days before death, and yet without the history of any ordinary injury which could be expected to cause such a fracture.

The vast majority of cases of fractured rib are due to violence, and a rib may be fractured either (1) at the point of impact, or (2) about its middle, as when the chest is subjected to a severe crushing force.

In this case, however, the fracture occurred close to the junction of the rib with its costal cartilage. What explanation can be offered to account for this curious fracture?

I believe that the ordinary movements of respiration tended to weaken the fragile cancerous bone at this particular spot, and that the actual fracture occurred either from a sudden deep inspiration or owing to a sudden strain being thrown upon the bone during some movement when the rib was in a state of torsion at this part.

Let us recall a few facts with regard to the physiology of respiration. During respiration the ribs are raised, especially their anterior ends, and they carry upwards and forwards the sternum and its attached cartilages. They are also rotated each around its own long axis, so as to twist the costal cartilages to which they are immovably attached at their anterior ends. This costo-chondral junction is thus exposed to a distinct strain at every inspiration, since the elasticity of the costal cartilages causing them to *un*twist when inspiration is over, is an important factor in ordinary expiration.

The weak point of the rib, then, is where the movable rib joins the relatively immovable costal cartilage by a fixed, unyielding joint.

I have experimented with several dried ribs, so as to imitate the natural movements of respiration,—that is, to keep the anterior end of the rib somewhat fixed, but leaving the costo-vertebral articulation free, so that the rib can be rotated on its own axis. When the ordinary movements of respiration were made with such a rib with sufficient violence the rib fractured, and it fractured always close to its anterior end,—that is, exactly in the situation found in our case.

When we remember the hollow, brittle condition of the bones found in this case, it is not unreasonable to suppose that what powerful muscular movements could perform in a dried rib, ordinary muscular movements can also achieve in a rib already so much weakened by disease.

The foregoing report by Dr Purves Stewart shows that the case was not one of simple osteomalacia, but that it was an example of a more rare disease, viz., general secondary carcinoma of the bones, with softening,—osteomalacia carcinomatosa. As has already been indicated, the features of special interest are, the general distribution of the infection of bones, the association with this of softening and deformity, the long period which elapsed between the removal of the primary focus and the appearance of symptoms pointing to secondary infection, and the microscopical characters of the bones.

Frequency.—Increasing experience points to the conclusion that secondary infection of the bones is much more common than was formerly believed. Hawkins reports cases in which the bones were cancerous, although during life there had been no suspicion of such infection. Arnott records the case of a man, aged 48, who came to him to have a swelling on the temple opened. Two and a half years before, he had his left arm removed for medullary cancer at the upper end of the humerus. He died of influenza. The swelling for which he sought advice was cancerous. There were also other cancerous tumours of the skull; and at the post-mortem it was found that the stump was healthy, but that the clavicle, scapulæ, sternum, vertebræ, ribs, and femur had all disease analogous to that found in the skull, but confined to the cancellous structure. Such infection was unsuspected during life. There was no cancer of internal organs. Förster records a very interesting case, the fourth of his series, that of a woman, aged 49, who died of thrombosis of the right iliac vein, with hæmorrhagic infarcts in several internal organs. The vertebræ and many other bones on section seemed to be healthy, but under the microscope they were seen to be affected by general carcinomatous infiltration. Snow found on post-mortem examination that of ten cases which had been operated on for breast cancer, nine had secondary deposits in the humeri, in four of them the vertebræ were cancerous, and in some of them other bones also were affected. In one case recorded by Snow, a woman who had breast scirrhus, but who died from cerebral and pulmonary complications, the bones were cancerous. A specimen which was taken as characteristic of normal bone marrow was accidentally found to be cancerous. Another patient, who had scirrhus of the mamma of three and a half years' duration, who died of tubercle of the lung, had no symptoms of bone disease, nevertheless scirrhous cells were seen in typical acini in both humeri and in one lumbar vertebra. Snow examined specimens in the museum of St Thomas' Hospital, No. 673, from a woman who had died after excision of the right breast for scirrhus. A section of one femur which had been preserved moist was found to be a typical example of spheroidal-celled carcinoma. The other half of the same bone, the right humerus, and one patella were all mounted as dry specimens of fragilitas ossium; but Snow believes them all to have been cancerous, certainly the femur was.

Förster believed that osteomalacia was a very rare phenomenon in cancerous disease; he had sought for examples both in literature and in museums without success. He had found many observations regarding the softness and flexibility of individual bones. He observed and recorded five cases of carcinoma affecting the spinal column, thorax, and other bones. Two of these presented a complete picture of osteomalacia, but they were discovered to be cancerous (osteomalacia carcinomatosa) only after post-mortem examination.

The first case was that of a woman, aged 37, who about a year previously had the right mamma and axillary glands removed for carcinoma. The wound healed perfectly with no appearance of recurrence in the cicatrix. She, however, did not regain her strength, grew thinner, the lower half of the sternum increased in size; eventually she died of œdema of the lungs. On commencing the post-mortem examination Förster recognised at a glance the deformities characteristic of osteomalacia,—well-marked kyphosis, alterations in the shape of thorax, etc. On part of the cicatrix there was a thin crust, and in the right axilla a small cancerous nodule. All the bones were affected with diffuse carcinomatous degeneration, and could be cut with a knife or with scissors.

The second case was that of a woman, aged 59, who had been twice operated on because of cancer of the left breast. After the second operation the wound healed well, but the woman continued to lose strength, the spinal column became kyphotic, the left side of the thorax sank in behind and was pushed forward in front; the symphysis pubis projected a little. A secondary nodule developed in the operation scar, and the axillary glands became cancerous. All the vertebræ were cancerous, but the sacrum was free from infection; the intervertebral substance thinner, but not cancerous. Of the ribs a number were affected, showing in some places cancerous infiltration, in others healthy medullary substance.

The third observation related to a preparation in the Würzburg collection, regarding which Förster could not obtain any previous history. The specimen was from an adult male, and consisted of the bones from the tenth thoracic vertebræ downwards with the pelvis. There was kyphosis in such a degree that it must have been observed during life. The vertebræ were infiltrated with scirrhus, so also the spinal cord and membranes, but the pelvis was unchanged.

The fourth case related to a very fine specimen of diffuse carcinoma of the spinal column and many other bones. There was no softening and no deformity. The subject was a woman, aged 49, well built, but emaciated, the right lower limb very œdematous and swollen. The brain and cord were normal; in the left lung a cancer nodule; the pancreas large, hard, with a smooth shining surface on section. Infarcts in several parts of internal organs. An old hard thrombus in the right iliac vein. The bones of the spinal column seemed normal to the naked eye on section; but under the microscope the bodies, processes, and arches showed diffuse carcinomatous infiltration of the medullary substance.

Rokitansky held that osteomalacia occurs not seldom in cancerous disease, and that not infrequently it is associated with cancer of the internal organs. He records the following case:—

A silk weaver, aged 61, as long as he could remember, suffered from rheumatic pains in his limbs. The last year of his life he had very severe, sharp pains in the lower extremities, then in the trunk, especially the thorax. Fever, cough, dyspnœa, and diarrhœa supervened, and he died of marasmus. Post-mortem the body was pallid; the bones of the trunk, the ribs, sternum, and vertebræ were soft and easily indented; they contained a whitish, milky, creamy fluid. The inner surface of the whole vault of the skull was lined with pale, red, lardaceous, medullary (cancerous) adventitious growth.

Volkmann said that in primary cancer of the bones there may be deformities of the skeleton resembling in all respects those seen in osteomalacia. He states that in the absence of deformities, and in the absence of cancerous swellings in other organs, the diagnosis, as Förster has pointed out, is often impossible during life. Cases of rapid extension to a great part of the body without deformity are usually mistaken for rheumatism.

Butlin records the case of a man, aged 50, who had softening of all the bones; they could be cut with a knife, and the calvaria bent with the fingers. This was reported to be sarcoma, secondary to two tumours of the lower jaw, one of seven, the other of four years' duration. Butlin remarks that mollities ossium is probably not unconnected with myeloid disease.

Hirschberg records the case of a servant woman, aged 35, who had softening of clavicle, the bones of both arms, left thigh (which was afterwards fractured), left humerus, left tibia. In the bones there were sarcoma, cysts, and softening.

The Kind of Cancer.—Förster described his cases as primary, but Volkmann was of opinion that all the cases collected by Förster did not relate to primary cancer. Carcinoma has rarely more than one focus of origin; general carcinoma of the bones is therefore secondary. The two most marked of Förster's cases, although described as primary, were secondary to carcinoma of a mamma which had been removed some time previously. A specimen described and figured by Volkmann as primary diffuse cancerous infiltration with softening is also secondary to scirrhus of the mamma which had existed for four years. The specimen was from a woman aged 56. Nine months before her death she had pains in the left hip; the limb gradually shortened, and the femur in its upper half bent like caoutchouc. There was also diffuse carcinoma of the lumbar and dorsal vertebræ, of the ribs, and of the left half of the pelvis. The bones were flexible and could easily be cut with a knife. The majority of the cases are secondary to scirrhus, most frequently to breast cancer; indeed, so frequent is the connexion that Snow stated, in an article in *The Lancet* in 1891, that distant secondary deposits in the bones are always secondary to breast cancer. He had not then seen any which were not, although he recorded references to some. Hawkins, on the other hand, knew of only three cases of scirrhus, as distinguished from medullary cancer, with secondary deposits in the bones. Rindfleisch held that the diffuse carcinosis of the pelvic bones and adjacent viscera, which present the clinical features of osteomalacia, is a soft cancer, characterised by the degeneration of the medulla from a countless number of foci. There are exceptions both in relation to the kind of cancer, and also in relation to the primary seat. Cruveilhier recorded a case in which one of the testes was removed from a young man, aged 27, on account of medullary cancer; six months later he had pain in the sides of the chest and shoulders, and later paralysis of the lower limbs; post mortem the vertebræ were found to be cancerous, and also the posterior extremities of the first two ribs. Snow also gives references to two examples of carcinoma with uncommon sources of origin,—the specimens in the Museum of the Royal College of Surgeons, England, No. 1687, the parietal bone of a child secondary to carcinoma of the testis, 1687A and 1687B, skull and left femur of a man secondary to carcinoma of the prostate. There are also on record examples of the disease secondary to cancer of internal organs. Paget remarks that the peculiar cancer of the thyroid secondarily affects the bones as if by selection. Moxon records a case of colloid cancer which affected the cranium, spine, seven of the right and four of the left ribs, also one bronchial gland. The patient was a young man, aged 23. The lungs were healthy. The bones of the limbs were not brittle. They were not examined microscopically. Sarcoma occasionally picks out the bones for general infiltration.

The secondary deposits correspond very exactly in character with the primary source of infection, whether it be scirrhous, medullary, or colloid cancer, or sarcoma. It is very evident in melanotic cancer.

The length of time which may elapse before there is evidence of secondary infection.—An interesting point in the case recorded is the length of time which elapsed between the operation and the fatal issue, viz., nine years and five months; and if we are warranted in considering the first attack of severe pains in the back and limbs as evidence of infection of the bones, then five years and eight months had passed since the removal of the primary disease. Frederick Dennis says that if there is not evidence of reappearance within three years after operation, there is little probability of it at a later date. Hardly 2 per cent. of cases occur after three years. Snow found that of 44 cases operated upon for breast cancer wherever reappearance had subsequently ensued, it had, with one exception, been obvious within two years, or so short a space of time afterwards that medical examination would have detected the symptoms after the lapse of two years. The exceptional case was that of a woman operated on in 1879 who seven years afterwards, viz., in June 1886, was readmitted with malignant disease in the liver; she had apparently enjoyed good health in the interval. The cicatrix and the axillary glands remained free from deposit. Holmes records the case of a woman, aged 52, who had scirrhus of the right mamma—a small hard, puckered mass the size of a walnut—for thirty years. She had concealed it through fear of operation: she had suffered pain in the left hip for three years; after that period the bone gave way while being examined by a surgeon; three months later she had fracture of several ribs, and several tubercles in the skin. Post mortem the ribs were in some places so attenuated that they gave way to the slightest force; numerous soft deposits were also seen in them. Hawkins records the case of a woman, aged 55, whose right breast had been removed six years before for cancer; the part remained well for five and a half years, then tubercles formed around the cicatrix; for two months prior to that she had experienced much pain in the back. Post mortem all the vertebræ were found to be cancerous, and softened; many of the bones, the glands, and the serous membranes were also infected.

In relation to the long interval which occasionally elapses between the primary and the secondary manifestations, it is interesting to notice that the disease has apparently remained dormant for long periods in one or many bones until some accident, or some serious debilitating influence, has served to stir it into activity. The case now recorded is an evidence that in cancer cells the inherent powers of growth are various, apart from the character of the nidus. Bone is said to afford a specially favourable nidus for the development of the cancer cell, and to explain those cases in which the disease remains in abeyance in the bones for a long period, it has been assumed that the *resting spores* of the cancer had been deposited there. The supposed existence of a resting spore has been introduced in order to explain the difficulty presented in these patients. In the present case we have an example of bone infected for so long a time that it had, because of alterations in its nutritive processes, been rendered extremely thin; and nevertheless, when examined, certain portions of the marrow appear to be healthy (Plate II.), they present no evidence of disease, while in the adjacent portions the cancer cells are arranged in characteristic form. The appearance presents a great contrast to those cases in which the whole medullary substance is infiltrated with cancer cells. The reasonable explanation seems to be that the infective cell in this case was one of slow or weak power of development. Apart from the direct influence of the cancer cell on the structures adjacent to it, there must be some interference with the general nutritive changes in the bone at a distance from the growth. The course is not invariably the same. In some the bones become brittle, but in others they are rendered flexible. From the latter the earthy salts must have been removed to a greater extent than from the former. In the first three cases of Förster, previously referred to, cancerous infection was associated with softening, but in the fourth case, although there was general infiltration of the bone, there was no softening. In some cases the bone is rendered thinner, in others it occupies a larger bulk.

A point of interest in cancer cases is the existence or absence of cachexia. We occasionally meet with patients who have for considerable periods of time suffered from cancerous disease, who appear well nourished, with a good colour; they have none of the cachectic appearance which is exhibited markedly by others, even although the latter are not suffering from septic poisoning. A gradually increasing number of observations point to the interference with the blood-forming function of bone marrow, in consequence of secondary infection, as being at least one of the causes of the anæmia which is seen as a late symptom in some cancer patients. Why is it that sarcoma rarely affects the glands, although it frequently involves the bones? Are the phagocytes of the glands able to deal with the morbid infective material of sarcoma, but is the lymphoid tissue of bone unable to do so because of the difference in the character of its cells? Carcinoma has an extraordinary proclivity for dissemination by the lymphatics, the glands are early affected, and, as in the above case, the bones and serous membranes sometimes become infected while internal organs escape. Why is malignant disease so often confined to a bone or many bones without affecting the adjacent structures and glands, then if the bone is fractured a rapid development succeeds? Is the cause a purely physical one?

Symptoms.—The earliest symptom of secondary cancer of the bone is pain in the bone involved, and tenderness on pressure. But there are on record several cases in which the bones were unexpectedly found to be cancerous, there not having been any symptoms of bone disease during life. As the disease advances the nutritive processes in the bone become more seriously affected, and not always in the same way; the function of bone marrow is also interfered with. In some cases the bone becomes brittle, but more frequently it is softened and may be bent, or cut with a knife. In some cases the bone is enlarged; this is most often seen in the sternum. When the function of the bone marrow is affected, and a large number of bones are involved, the blood making is interfered with, and the patient becomes anæmic; consequently if a patient who has at a former time suffered from primary cancer should become anæmic, apart from septic absorption, then there is a strong presumption that bones have become infected.

Diagnosis.—The diagnosis of this, as of other insidious maladies, is difficult. Förster's experience was that he had observed several cases of carcinoma of the spinal column and thorax which presented a complete picture of osteomalacia, and it was only after death discovered to be bone cancer. Volkmann said that in the absence of deformities, and of cancerous swellings in other organs, the diagnosis is often impossible during life. Both osteomalacia and osteomalacia carcinomatosa have been most frequently mistaken for rheumatism. In the early stages of both diseases there is no deformity as a guide; in both of them there may be pains in the bones, aggravated by pressure; the blood-forming function may be interfered with, leading to a degree of anæmia, and although it is said that in osteomalacia carcinomatosa the cachexia is more marked than in the simple disease, it is difficult to differentiate when it is a question of degree of any symptom. Although nerve symptoms may occur in the cancerous variety, they are often absent, whereas in nearly every case of simple osteomalacia they are marked, viz., increased knee-jerk, ankle-clonus, spasmodic twitching. Jaccoud says that osteomalacia carcinomatosa produces rapid painful paraplegia. This is an accidental occurrence, and is uncommon.

If we have to deal with any patient who has suffered from cancer, whether operated on or not, and who is not the subject of septic poisoning, the supervention of anæmia should lead to the suspicion that the bone marrow has become secondarily affected; pain in the bones which is aggravated by pressure should increase the suspicion, and the supervention of deformities in such a case would warrant the diagnosis of osteomalacia carcinomatosa rather than of simple osteomalacia.

LITERATURE.

ARNOTT.—*Lond. Med. Gazette*, vol. ii., p. 201, 1840.
BUTLIN.—*Lond. Path. Trans.*, vol. xxxi., p. 277, 1880.
COOK.—*Trans. Path. Soc. Lond.*, vol. xxii., p. 260, 1871.
FÖRSTER.—"Ueber die Osteomalacie bei Krebskranken," *Würzburger med. Zeitschrift*, 1861, Bd. ii. Heft 1.
FÖRSTER.—Ref. *Schmidt's Jahrbücher der gesammten Medicin*, ii., p. 17, 1861.
HAWKINS.—*Med. Chir. Trans.*, vol. xxiv., p. 45, 1841.
HIRSCHBERG.—*Beiträge zur pathol. Anatomie und Physiol.*, Bd. vi., p. 513, 1889.
HOLMES.—*Trans. Path. Soc. Lond.*, vol. xi., p. 219, 1860.
JACCOUD.—*Traité de Pathologie Interne*, t. ii., p. 556.
KUHN.—*Gazette Hebdomadaire*, p. 729, 1864.
MOXON.—*Trans. Path. Soc. Lond.*, vol. xxii., p. 206, 1871.
PAGET.—*Surgical Pathology*, 1876, p. 818.
PAGET.—*Lancet*, ii. 1887, p. 1002.
RINDFLEISCH.—*Pathological Histology*, New Syd. Soc., vol. ii., p. 293, 1875.
ROKITANSKY.—*Pathological Anatomy*, vol. iii., p. 177.
SNOW.—*Cancers and the Cancer Process*, 1893.
SNOW.—*Reappearance of Cancer*, 1890.
VOLKMANN.—Pitha and Billroth, *Handbuch der Chirurgie*, ii., 1–2, p. 470.

IV.—ON CONTRACTION OF THE ARTERIES OF A LIMB THE PROBABLE CAUSE OF MUSCLE ATROPHY IN TUBERCULAR JOINT DISEASE.

By A. G. MILLER, M.D., F.R.C.S. Ed., Lecturer on Clinical Surgery; Surgeon to the Royal Infirmary, Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh*, 1st *July* 1896.)

MR PRESIDENT AND GENTLEMEN,—My object this evening will be to show that in all probability the muscle atrophy which accompanies tubercular disease of a joint is due to diminished blood-supply caused by contraction of the main bloodvessels of the limb.

Two years ago, in two papers[1] read before this Society, I mentioned that I had frequently noticed, when amputating for tubercular joint disease, that the main bloodvessels were unusually small, and I associated this with the atrophy which is so characteristic of tubercle. I was all the more inclined to take this view of the matter because I have been unable to find any satisfactory explanation of muscle atrophy. Hilton[1] has pointed out that the same nerves that supply a joint, supply also the muscles acting on that joint, and the skin over the insertion of these muscles. This explains the fixation and flexion of diseased joints, but not the muscle atrophy. Now, it seems to me that diminished blood-supply from a contracted main vessel provides an explanation.

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[1] "On Bier's New Method of Treating Strumous Disease," *Edinburgh Medical Journal*, February 1894. "On the Diagnosis of Tubercular Joint Disease," *Edinburgh Medical Journal*, November 1894.

To guard against misapprehension in the course of my argument which follows I wish to say that I am dealing with the atrophy connected with tubercular joint disease solely, not because I suppose it is the only or most marked form of muscle atrophy, but because I have studied it specially, and because the subject of muscle atrophy in a general sense would require more time and knowledge than I have to give to the subject. I do not assume that I am able to prove my argument. All I claim is that I am submitting a likely explanation of the phenomena which I have observed.

There is but one matter of original observation in my paper, viz., the association of contracted vessels with tubercular joint disease. This, so far as I know, has not been described before I drew attention to it two years ago. I regret that I have not been able to work out this from the experimental point of view, having no facilities.

In order to shorten this paper, I shall take as granted that the muscle atrophy which we find so marked in tubercular joint disease, is greater than can be accounted for by mere want of use (though my friend Mr Cathcart would not subscribe to this), and that the atrophy is caused by a reflex influence acting through the anterior horns of the spinal cord. In regard to the exact way in which this reflex acts there seems, however, to be a difference of opinion among physiologists and pathologists. Some believe that there are special trophic nerves supplying the muscles along with the motor nerves. Others consider that the vaso-motor nerves are the true trophic nerves. I will not, however, enter upon a discussion of this subject. I do not consider myself qualified to do so, and I do not at present think it necessary to establish proof one way or another. I will merely say that to my mind it seems highly probable that vaso-motor influences govern muscle nutrition, *vaso-dilatation* causing increase of growth, and *vaso-contraction* causing atrophy. I employ these terms in a general sense, viz., increase or diminution of vascular calibre from any cause.

Supposing, therefore, for the sake of my argument, that the vaso-motor system controls muscle nutrition, I suggest that probably the cause of muscle atrophy in tubercular joint disease is *a diminution of the blood-supply from contraction of the main artery or arteries.* In support of this I would point to the following facts:—

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[1] *Rest and Pain*, p. 150.

1. Contraction of the arteries exists in cases of tubercular joint disease. This I have frequently seen, and I show you to-night a leg recently amputated which exhibits the condition very markedly.

In my paper on Bier's method of treating tubercular joint disease by congestion, referred to above, I use the following expressions:—"There is a condition associated with tubercular joint and bone disease which I have observed, but which, so far as I know, has not received much attention, viz., that the arteries supplying the limb are unusually small." In my paper on the Diagnosis of Tubercular Joint Disease I say also,—"The atrophy is of the limb as a whole, muscle and bone alike, and it tends to persist. What is the explanation? I believe that the cause is a reflex contraction of the arteries of the limb, which interferes with nutrition. I have been led to that opinion by observing, when I have had occasion to amputate for tubercular joint disease, that, though there may be many active vessels in the neighbourhood of the disease, the main arteries are always very small. I have often observed the latter about half the size one would expect them to be under ordinary circumstances,—in a primary amputation, for instance." I conclude, therefore, that contraction of the main bloodvessels exists in tubercular joint disease.

2. This brings me to my second point, which is the co-existence of arterial contraction and muscle atrophy, not only in cases of tubercular joint disease, but also under other circumstances. For instance, it is proved by Thoma[1] to occur in stumps after amputation. I shall refer to this again. In the meantime I turn to the question,—If these two co-exist (as they certainly do), which is the cause and which the effect, or are they both the result of a common cause?

It seems to me that muscle atrophy is not likely to be the cause of diminished blood-supply. It is much more likely to be the result. They are both symptoms of the same disease, viz., tubercular joint disease, but they may be so because the one depends upon the other, and, as I have already said, diminished blood-supply is more likely to be the cause than the result of muscle atrophy.

In speaking of atrophy generally, Thoma[2] gives three causes or explanations: 1, Want of use; 2, vaso-motor disturbance; 3, possible trophic nerve influence. All of these influences may, I think, imply diminished blood-supply. For instance,

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[1] *Text-book of General Pathology*, by Richard Thoma, translated by Alexander Bruce, M.A., M.D., etc., 1896 (p. 301).

[2] *Loc. cit.*, p. 446.

"want of use" means lessened demand for blood; vaso-motor disturbance that produces atrophy is likely to be of the nature of vaso-contraction, and we have seen that the true trophic nerves may be the vaso-motor system. I think, therefore, that arterial contraction, and consequently diminished blood-supply, is a cause, and a very likely one also, of atrophy. I have recently come across statements which tend to support this view. Mr W. G. Spencer, in his Erasmus Wilson Lectures on the Pathology of Bone,[1] says, "A diminution in the arterial blood-supply checks the formation of bone whilst absorption continues, so that eccentric atrophy is brought about." And again he says, "Atrophy from disuse, and consequently diminution in the blood-supply, suffices to explain the changes in bone without the need of supposing a loss of an efferent trophic influence."

3. My next point is that the muscle atrophy which is found in connexion with tubercular joint disease is simple. This I have referred to in my former papers, but may here quote two extracts from Charcot[2]—"In joint disease the muscle atrophy is simple."[3] "There is no reaction of degeneration."[4] Indeed, he dwells strongly and frequently on the muscle atrophy from joint disease differing from that due to nervous causes or want of use. Others have specially examined the muscles atrophied in tubercular disease, and have found no degeneration, fatty or fibroid. I have had the reaction of degeneration tested for in tubercular joint muscle atrophy, and have found it absent. Now, this is just the kind of atrophy that we would expect to find as the result of deficient blood-supply from contracted bloodvessels. Before leaving this point I must say that muscle degeneration is found in far-advanced and old-standing cases of tubercular joint disease, in which the whole limb is atrophied. But this is only what one would expect, seeing the nerves probably share in the atrophic changes after a while, and the functions of all the various parts and tissues are more or less interfered with.

4. My fourth point is that muscle atrophy in tubercular joint disease is *progressive* if the disease be not checked, and *permanent* if the disease be permitted to go beyond a certain point. This can be abundantly proved from ordinary clinical experience. Every one knows how rapidly progressive muscle atrophy is in tubercular and in some other joint diseases. Unfortunately the atrophy does not limit itself to the muscles, but extends to the bones and to the limbs as a whole.[5] Now, this is just the result one might expect from diminished blood-supply and consequent

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[1] *Lancet*, May 30 and June 6, 1893.

[2] *Diseases of Nervous System*, New Sydenham Society, 1889.

[3] *Loc. cit.*, p. 23.

[4] *Loc. cit.*, p. 27.

[5] Charcot says that atrophy started by joint disease is apt to persist, and to cause general atrophy of the limb, *loc. cit.* (p. 26).

deficient nutrition. That such atrophy is apt to persist is also easily proved from ordinary clinical experience. Do we not see everywhere shrunken and distorted limbs, the result of untreated and neglected tubercular joint disease? Such atrophy is apt not only to persist, however, but to progress, as in the case of the limb which I show you this evening, in which the femur and tibia have become (from tubercular disease of the knee joint) about half the size (in bulk) of the corresponding bones of the other limb, whilst their length remains much the same; and this change has taken place in twelve months, showing that the comparative alteration in size cannot be the result of mere want of growth on the diseased side.

Now, it seems to me that we have hitherto had no adequate explanation of such a state of matters as this. Why should such a simple atrophy steadily, and sometimes rapidly, increase? Why should it persist, and sometimes go on to permanent and progressive wasting of a whole limb?[1]

That such an arterial contraction exists in stumps after amputation has been proved by Thoma.[2] He has in such cases found a permanent and progressive arterio-stenosis, which is due to two causes—1, Concentric atrophy of the media; and, 2, thickening of the intima by deposit of connective tissue. If this or something similar could be found in connexion with tubercular joint disease, it would abundantly explain and clear up the cause of the progressive and permanent muscle atrophy.

Dr Bruce has kindly examined for me specimens of the popliteal artery and a portion of muscle from the limb which I have shown to-night, and he reports that he has found slight sclerosis of the intima in the artery and no degeneration in the muscle. There has not been time, however, to make an exhaustive examination, but Dr Bruce promises to carry out the investigation more fully if I can supply him with material, which I hope to be able to do.

5. I would now go a step further, and say that it is probable that tubercular joint disease causes muscle atrophy by producing anæmia of the muscle through contraction of the arteries.

In support of this statement I would mention one or two facts which I think bear on the subject—

a. Tubercle is associated with anæmic conditions. The so-called cold abscesses are known to be tubercular, and they have very little vascularity or inflammatory action about them—hence their name. Again, tubercular joint affections are so bloodless that they used to be called "white swelling." As one more surgical illustration, I would point to the tubercular necrotic areas which we find in bones, which are absolutely bloodless and apparently brought about by destruction of the blood-supply. I do not say that all these conditions are due to arterial contraction, for I do not know; but I point to the association of these anæmic conditions with tubercular disease. I have often thought that in this local anæmic condition of tubercular parts there is an illustration of Nature trying to produce a cure by shutting off the blood-supply: in some cases succeeding, in others failing, through falling into a Scylla in avoiding a Charybdis. In other words, the anæmia, whilst checking the inflammation, possibly fails to cure the disease by not supplying sufficient blood to destroy the bacilli.

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[1] I have seen cases where the general limb atrophy was so great, and evidently progressive, as to necessitate amputation even after the joint disease was cured.

[2] *Loc. cit.*, p. 301.

b. My next point is that irritation, especially a slight but constantly acting irritation, causes contraction of bloodvessels. Now, tubercular irritation is of this kind, and Charcot says that diseased joints cause rapid and early muscle atrophy, because the irritation is continuous.

c. Another point is that congestion is unfavourable to tubercle. Rokitansky stated long ago that "a congested lung possesses an immunity against tuberculosis," and it is admitted that there is some truth in this statement. Page suggested that Koch's tuberculin acted in the same way; and Bier founded his method of treating tubercular affections by congestion on this dogma of Rokitansky's.

d. My next point I submit with considerable deference, because it is a mere fancy of my own. It is that possibly the products of the tubercle bacilli tend to cause vaso-contraction, just as the products of pyogenic organisms cause vaso-dilatation and diapedesis. Ogston, Watson Cheyne, and Treves hold that tubercular abscesses contain no true pus and few leucocytes. My friend Mr Stiles tells me, however, that more recent investigations show that there is very little difference between the contents of a tubercular abscess and any other collection of pus. That may be so, so far as the microscope is concerned, but my clinical experience tells me that there is a considerable difference. And I still think that some variation in the vascularity may account for this difference.

6. I now come to my last point. When I first thought of a definite relation between the muscle atrophy and the arterial contraction which I saw in cases of tubercular disease of joints in the way of cause and effect, I realized that there must be some definite connexion between the vessels and the muscles, either directly or through the nervous system. It occurred to me also that the tendency of tubercular joint disease to pick out certain muscles for the manifestation of atrophy would perhaps help me. I found, however, that whilst in some joints (the shoulder, for instance) association of the diseased joint and the atrophied muscles could be made out quite easily, both through the nervous and the vascular systems, in other joints (the knee, for example) the relation was round about and difficult to trace. Arguing, however, from the joint disease as the primary cause, I could

see how arterial contraction could be produced quite easily, provided the influence passed through the vaso-motor system, for the vaso-motor system is freely and copiously connected with the spinal system of nerves.

Next came the connexion between the vessels and the muscles, and that, of course, was easily made out. But, as I have already indicated, in this connexion a very significant fact cropped up as likely either to support or destroy my line of proof—viz., the constant and prominent selection of certain muscles for the exhibition of the atrophy in connexion with tubercular joint disease.

Ferrier[1] tells us that extensor muscles atrophy much more quickly than flexors, because they are weaker. One might suppose, therefore, that given a general atrophy from contraction of the main artery of the limb, the extensors will manifest the change first and most. But there is something more. There is always a close relation between the special vessels supplying a given joint and those supplying the muscles that atrophy most. (See Appendix.) From this intimate relation I gather, therefore, that the special atrophy of certain muscles can be explained on the diminished blood-supply theory.

Now, I am quite aware that there are other possible ways of turning the argument according as one looks at it. For instance, it might be said that whilst the joint disease is, as before, the primary factor, the vaso-stenosis is not the cause of the muscle atrophy, but its result. This would be in keeping with Thoma's theory[2] that the demand creates the supply, and I thought at one time that this might be the true explanation—viz., muscle atrophy first, then arterial contraction and general progressive atrophy of the limb, but I had two difficulties:—1. This theory left the muscle atrophy unexplained, except by a vague and mysterious trophic nervous influence. 2. The muscle atrophy has been shown to be simple, and not such as occurs in connexion with nerve causes. In other words, the facts known fit in better with the explanation that the arterial contraction causes the muscle atrophy than with any other theory I know of.

I would sum up my argument as follows:—

1. Muscle atrophy is a constant and prominent symptom in tubercular joint disease.
2. No explanation of this atrophy has been suggested hitherto, except a vague and mysterious reflex influence.
3. Contracted arteries have been seen and proved to exist.
4. The muscle atrophy is of a kind likely to be caused by deficient blood-supply rather than by nerve influence.

I assume, therefore, that arterial contraction and consequent diminished blood-supply is the cause of muscle atrophy in tubercular joint disease.

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[1] *Lancet*, 12th August 1893, p. 386

[2] *Loc. cit.*, pp. 265-269.

APPENDIX.

Relation of Arteries supplying Joints to Muscles which Atrophy.

Shoulder.—Posterior circumflex and supra-scapular arteries supply joint and also deltoid and scapular muscles.

Elbow.—General arterial anastomosis round elbow, formed by branches of superior profunda, inferior profunda, and anastomotica. Triceps, biachialis anticus, and coraco-brachialis supplied by superior profunda; biceps by special branches from brachial artery; it sometimes holds out well.

Hip.—Branches from gluteal and sciatic arteries supply the joint, and also muscles of hip. Artery to round ligament comes from internal circumflex of profunda; hence the thigh muscles atrophy also.

Knee.—Free anastomosis between articular branches of popliteal, branches of profunda and anastomotica magna. Quadriceps supplied by various branches from superficial femoral, profunda, and anastomotica, and also branches from superior articular arteries.

V.—LIGATURE OF VEINS IN A CASE OF VARICOSE ULCER.

By R. W. IRVINE, M.B. C.M., Pitlochry.

SOME time ago you did me the honour to give a place to a description of my use of the aseptic blood-clot in the healing process, where lost tissue had to be repaired, and the hiatus filled up by Nature's process. That treatment consisted in the utilization of the clot, kept aseptic, never disturbed, till it rolled off, a mere shred of its former self, spontaneously, or very nearly so, and left its task accomplished, a separation than which I have never seen one more full of lessons—surgical, pathological, physiological, logical, and, may I say, almost, aye *quite*, moral—in my professional experience. To one acting a good deal alone, as I have to do, and on my own responsibility, this very fact has in it elements of compensation for the undoubted deprivation of the chances of consulting with the greater experience and ability which are given in such centres as our hospitals; and that compensation consists in this, that one is less trammelled by tradition, and therefore more apt to hit on—by sheer necessity often, sometimes by the experimental instinct, oftenest, I dare say, by dissatisfaction with the rule-of-thumb methods—some fresh principle or procedure, or recover some of the old and forgotten ones. On this basis I propose to record another case, developing the use of the aseptic blood-clot for curative purposes in another way.

Case.—J. S. Varicose ulcer of both legs. Extreme varicosity of all the system of main posterior and collateral veins on both legs, mainly the right, from the hollow of the knee to the ankle.

Legs bogged. Ulcers unhealed, and unhealable under present circumstances. Both ulcers of the typical form, large, dirty, deep, india-rubbery edges, hopeless, situated on the fibular side, towards the back. *Dangerous* hæmorrhage had taken place from the main posterior vein or a large branch in connexion with the right ulcer. Astringents, rest, boric dressings, bandaging, and the usual plans had been tried, including blistering, and no use. I tried the actual cautery to the margins, and lightly to the surface, and it only seemed to make the mischief spread. At my wit's end, I bethought me of stopping the supplies. I dissected down on what seemed the largest feeding vein, as near the ankle as possible, and with an aneurism needle ligatured it with carbolized catgut. I did the same, as near the knee as possible, to the apparently main vein. I did the same to three or four apparently less important veins, to make sure, and awaited the result. Waiting was soon rewarded. Where spreading, or at least stubborn ulcers existed, contracting flattening and healthy healing ones took their place. Where waterlogged legs were, rapidly thinning ones took their place, and I hope that in due time healthy muscular fibre will replace the blubbery stuff that was there before I operated. Where turgid veins were, tough cords began to form, and went on forming, between the points of ligature. I do not say that all the veins were obliterated. I didn't want that, but enough to cause the above change, which was all I wanted, and almost more than I ventured to hope for.

But through it all runs the principle, Use the aseptic blood-clot, or any other clot—for Nature has a use for them all.

VI.—ON FORCEPS WITH ADJUSTABLE AXIS-TRACTION; AND ON FORCEPS FOR OCCIPITO-POSTERIOR POSITIONS OF THE VERTEX.

By R. Milne Murray, M.A., M.B., F.R.C.P., F.R.S.E., Lecturer on Midwifery and Diseases of Women, School of Medicine; Assistant-Physician, Royal Maternity Hospital.

(*Read before the Obstetrical Society of Edinburgh,* 11*th March* 1896.)

I.

The indications for the use of the forceps may be grouped as follows—

1. Inefficiency of the powers.
2. Abnormality of the passages—*a,* Hard; *b,* soft.
3. Malpresentation or malposition of the passenger.
4. Emergencies arising in mother or child demanding speedy delivery.

Indications coming under any of these divisions, with the exceptions of the abnormalities of the hard passages, may arise with a normal condition of the bony pelvis.

From the point of view of the present paper, it will be convenient to consider the conditions of the forceps operation—

1. As occurring in a normal pelvis.
2. As occurring in an abnormal pelvis.

We may take it for granted that the great majority of forceps operations are conducted in what may reasonably be regarded as normal pelves, the commonest indications being inefficient powers, resistant soft parts, or malpositions of the head. Accordingly, assuming that there is a normal type of pelvis, we imply that there must be a normal type of forceps. By this we mean an instrument which will enable us to direct the force of traction so that no more is spent on the mother's tissues than is sufficient to overcome the friction between them and the head. In other words, such a type properly used in a normal pelvis will enable us to extract the head with a minimum of force. It is now very generally admitted that the principle on which such a type must be constructed is found in the Tarnier forceps, and five years ago I laid before this Society a discussion of the mechanical construction of the Tarnier instrument as modified for British use by Prof. Simpson, which would best adapt it to the average pelvis. I take it that the construction then arrived at has been generally accepted; so far as I know, it has not been seriously attacked, and it is more or less closely followed by makers of these instruments.

I may briefly summarize the points of chief consequence in the construction of these instruments. The curve of the blade forms part of a circle with a 7-inch radius. This curvature was adopted as the result of experience, by which its suitability was established. The traction-rods are fixed as near the fenestrum as possible, are carried down parallel with and close to the shanks, and then curved backwards, so that the traction-handle lies in a line which forms the tangent to the curve of the blade at its middle point. By this construction the two chief advantages of Tarnier's principle are best secured. These are—1, Traction can be made in such a way as to pull the head in the axis of the pelvis for the time being; and, 2, the greatest freedom is allowed to the guiding action of the instrument, in virtue of which the application handles act as an indicator of the proper line of traction. So far, then, as the average pelvis is concerned these instruments leave little to be desired, whether we have regard to the saving of force in drawing the head through the bony canal or to the enormously increased delicacy with which we can regulate it during the process of "extension" in its passage over the perineum. So long, then, as we are dealing with approximately normal pelves, we may assume that the forceps already available are sufficient to meet all demands of axis-traction.

When, on the other hand, we consider the use of these forceps in pelves which are more or less abnormal, we readily see that an instrument which is, properly speaking, an axis-traction forceps in a normal pelvis cannot be so in an abnormal one, unless some means are provided by which the line of traction can be varied to suit the requirements of the altered canal. It is in this respect that instruments after Tarnier's principle break down and fail to justify the claim which is justly made for them in relation to the normal pelvis.

There are two variations from the normal type of pelvis which fall to be considered in relation to the forceps operation. In the first of these the sacrum is inclined less than normal, the axis of the canal at the inlet is more vertical, and the plane of the brim is more horizontal. Under this class come the justo-minor and the "masculine" pelvis.

A moment's consideration will show that traction made on a head coming through such a pelvis as this, by means of the ordinary axis-traction forceps, cannot be made in the axis proper to it. If the line of traction is right for the normal pelvis, it must obviously be too far back for this. In other words, some of the force exerted is spent on the sacral side of the canal towards which the line of traction tends.

If there were a fixed type or pattern of such a pelvis, it would be easy to design a pair of forceps which would give us all the advantages of an ordinary instrument in a normal pelvis.

Thus it would be necessary, first, to find the proper curvature of the blades. This would obviously be less than that of the ordinary instrument, since the canal is more nearly straight. Having determined on this, it would then only be necessary to give the traction-rods a backward curve sufficient to bring the handle to lie on the tangent to the middle point of the curve. This backward curvature would be less than that of the ordinary instrument; in other words, the traction-handles would lie nearer the application-handles and the line of traction would be nearer the vertical in proportion as the justo-minor canal is less curved than the normal. But, of course, there is no fixed pattern of justo-minor pelvis; the type varies from a slight to an extreme departure from the curvature and inclination of the normal pelvis. An instrument which would act in the axis of one example would be out of truth in many others.

The second variation from the normal which we have to consider in relation to forceps operation is the flat pelvis. I do not propose, however, at this time to enter upon the question of the relative advantages of forceps and turning in flat pelvis. In the paper already referred to I have discussed this question at some length, and I intend soon to say another word upon it. I content myself meantime by saying that not only am I strongly assured on theoretical grounds of the position I then took up, but that the practical experience of the last five years has but confirmed me in my opinion.

I shall accordingly assume that there are cases of flat pelvis in which the forceps may be used; and shall proceed to consider in what way the normal instrument must be readjusted to permit of axis-traction in such types.

The features of the flat pelvis which we must keep in mind are these:—The sacrum is inclined more backwards, the plane of the brim is more vertical, and the axis of the canal at the brim is more horizontal than normal. Thus traction made by the ordinary axis-traction forceps will tend to waste force on the pubis. This is just the opposite error to that which holds in the justo-minor. It is clear that for axis-traction in a flat pelvis the line of traction must be carried further back than in a normal pelvis; that is to say, it forms a greater angle with the axis of the shank.

Here, again, a pattern of forceps could readily be constructed to meet the requirements of axis-traction in a particular example of flat pelvis. This would involve an increased curvature of the blade, and an increased curvature of the rods backward, in order to bring the handle to the proper tangential line. Such considerations as these make it clear that an instrument that is truly capable of axis-traction in a normal pelvis, or in a pelvis for which it is constructed, is not so in a pelvis which diverges from the normal in one or other of the directions indicated. Nevertheless, it must never be forgotten that the ordinary axis-traction forceps is an enormous advance on the Smellie instrument in all varieties of pelves, normal and abnormal. Thus though the line of traction with these is faulty in both justo-minor and flat pelvis, it is much less vicious than with the old instrument. The "angle of error" —*i.e.*, the angle formed by the intersection of the actual and the true line of traction—is greatly reduced by the properly constructed Tarnier instrument, and hence the facility with which delivery can be effected by them in many cases of abnormal pelvis where the other had failed. But while the angle of error vanishes in the action of the Tarnier forceps in the normal pelvis, it reappears to a greater or less degree when they come to be used in a pelvis of the flat or justo-minor type.

It is with the view of meeting this difficulty of providing an instrument whose line of traction can be varied within considerable limits at will that I have devised the forceps I now desire to describe and show to the Society to-night.

The forceps itself is identical in all respects with the instrument which has been in use here for some years. It is built entirely of steel, and I have kept to the same curvature of blades, viz., one of 7-inch radius. So far as the pelvic curve is concerned, the curvature is of little consequence in relation to the variation in pelvic type. The advantage of the pelvic curve does not lie in its special adaptability to any particular type of pelvis, but mainly in its relation to the power of grasping and holding the fœtal head to the best advantage. No doubt certain minor advantages might be gained by being able to vary the amount of curvature, but these are small, and bear no relation to the question of axis-traction. The main object is that the line of traction shall pass through the middle point of the sub-occipito-bregmatic plane in vertex cases, where flexion is part of the mechanism at the brim, and through the middle point of the occipito-frontal plane, where extension occurs at the brim. If the curvature of the blade is such that the head is properly caught and held in such a way that it has no tendency to rotate in the forceps, the exact amount of curvature is of comparatively slight importance.

The traction-rods are jointed to the blades in the usual way, as near the fenestrum as possible. They then run down close to the shanks and along the back of the handles, and at a point half-way down they then turn back at a right angle for a distance of nearly 4½ inches. The horizontal part of these rods is oval in section, and the upper one is divided into distances half an inch apart, which are numbered 0 to 7.

The handle is applied to these horizontal rods by a block pierced to allow them to pass through. This block can be fixed in any position by a pinching screw, which is secured in such a way that it cannot slip out. To this block is fixed the handle by a joint which permits motion in a plane parallel to the rods. This motion is necessary to allow the handle to fall into the proper line of traction for each position on the rods. To the pin of the hinge-joint is fixed a sector, which moves with the handle. The periphery of the sector has marked on it the position proper to it for each position of the block on the rods. Against one of these marks is placed the word "normal." When the handle is adjusted to this mark the instrument is, as regards construction and efficiency, an ordinary pair of axis-traction forceps.

To adapt them to a pelvis whose inclination is less than normal, it is only necessary to shift the block one or more divisions nearer the handle; while to adapt them to one whose inclination is greater than normal, the block must be moved one or two divisions further from the handle. If the index is kept at the figure on the section corresponding to the figure at which the block is set on the handle, the line of traction will always pass through the centre of the fenestrum; but, of course, its inclination to the vertical will vary with the position on the rods at which the handle is fixed.

Mode of Use.

The question now arises, How is the instrument to be employed so as to obtain the advantages of adjustable axis-traction?

As to Normal Pelves.—When the operation is being conducted in a pelvis of normal type and dimensions, it is only necessary, after applying the instrument in the ordinary way, to set the handle at the figure marked "normal," and to use the instrument exactly as we use the ordinary forceps. We have the same guide in the application-handles as to direction of pull, and the same rules will regulate its use.

In Justo-minor Pelves.—It is, of course, impossible by any means at our disposal to determine the precise inclination of the brim of a justo-minor pelvis. If it were so it would be possible to set the handle at the exact position proper to any given pelvis. It is, however, a comparatively simple matter to determine whether or not a pelvis is of the justo-minor type. If this character is marked, we may assume that the inclination of the brim is more horizontal than normal and its axis more vertical. This being so, it will be proper to fix the block at a mark nearer the application-handles than the "normal" one. The degree of contraction, the amount of flexion present if the head is engaged, the difficulty of engagement, may all help us to decide as to how much further in than the normal mark we may reasonably set the handle. *Thus in a difficult case, instead of making a series of pulls with the line of traction in one position, as is necessary with the ordinary instrument, we may make a succession of pulls, changing the position of the handle and the direction of traction until we find the adjustment which seems to have most effect in advancing the head.*

In Flat Pelves.—On the other hand, suppose we are dealing with a flat pelvis. The head in this case always lies in the transverse at the brim, and the anterior fontanelle is as low or lower than the posterior. Extension characterizes the attitude of the head. Here the line of traction is behind the "normal." The handle must accordingly be shifted backwards along the traction-rods to an extent which will correspond to the degree of flattening, so as to bring the line of traction into line with the axis of the pelvic outlet. The true position will be obtained by trial, though a little experience will give a fair guide to the correct adjustment in most cases.

The following advantages may be claimed for these instruments :—

1*st.* Simplicity of construction and manufacture.

2*nd.* Simplicity of parts and ease with which they can be cleaned.

3*rd.* Ease of application.

4*th.* Wide range of action.

II.

One of the commonest indications for the use of forceps, both at the brim and in the cavity, is the occipito-posterior position of the head. In a certain number of these cases the forceps are applied with the occiput in the posterior half of the pelvis, in others with the long diameter of the head almost in the transverse and in others when rotation is partially or wholly accomplished, and the occiput has arrived in the anterior half of the pelvis. Three terminations of an occipito-posterior case may occur—1. The occiput may remain posterior, descent occurring with the head in a state of flexion. 2. Anterior rotation may begin, but owing to certain circumstances may be checked at such a stage as to leave the head impacted in the transverse diameter of the cavity. 3. The most common termination is complete rotation of the occiput forward, so that delivery takes place as in an anterior case. In the first two conditions the forceps is almost invariably indicated; in the last they are frequently required on account of the delay and exhaustion consequent on the tedious process of anterior rotation. The application of the forceps in the last group of cases does not differ materially from that required in anterior cases, but in those cases where the occiput remains posterior it has long been recognised that the use of the forceps is associated with difficulty and danger of a marked character. So pronounced are these complications of the forceps operation that it is almost universally admitted that in all cases where anterior rotation is likely to occur it is better to wait until the occiput has come forward before attempting the application of the blades.

Before proceeding to consider the special difficulties associated with the forceps in persistent occipito-posterior cases, I should like to say a word or two on the conditions which seem to prevent or to favour anterior rotation. For if we can recognise at an early stage of labour that anterior rotation is unlikely to occur, it seems to me useless to defer the application of the forceps after the os is fully dilated and the passages in a fit state. I think the three terminations of posterior cases previously referred to depend severally on the following conditions associated with the early progress of the labour.

1. If flexion is found well-marked,—that is, if the posterior fontanelle is well down and the anterior almost or entirely out of reach, and the pains at first not too frequent nor too vigorous, anterior rotation may be expected to occur.

2. If flexion is imperfect,—that is, if the anterior fontanelle can be easily felt, and the pains are moderate as to strength and frequency,—anterior rotation will begin, but there is a risk of the head failing to turn beyond the transverse, and consequently becoming impacted.

3. If flexion is imperfect, as in the last case, but the pains vigorous and rapid, the head will almost certainly slip back into the hollow of the sacrum, and the condition become persistent.

Any one who has had to deliver one of those cases in which the head becomes impacted in the transverse will have recognised the very great difficulty associated with its delivery, and also the risks connected with sloughing of the vagina, which are apt to arise at a subsequent period. The utmost care should always be exercised to prevent such a complication occurring. That anterior rotation is the most desirable mechanism is generally recognised, and various methods are commended by authorities to assist this process. For example, a favourite procedure was the employment of a twisting or rotatory motion applied to the handles of the forceps. The risks of such a proceeding are, however, so obvious, that a word of warning against the practice is found in most text-books. Manual rotation is another method which retains a certain degree of favour at the present time. Herman, for example, in his *Difficult Labour* speaks in high terms of the efficiency of the method specially described by him. I have given this method a careful trial in many cases of occipito-posterior, and have come to the conclusion that the cases in which it seems to be effective are just those cases that would have come forward had they been left alone. For in cases where the pains were not too active, and where flexion is well developed, it is the easiest thing in the world to turn the head inside the vagina, so as to bring the occiput round towards the pubis. On the other hand, in those cases which are marked by imperfect flexion it is with the greatest difficulty, either during a pain or in an interval, that the occiput can be turned from its posterior attitude. Probably the chief explanation of the difference between these two cases depends upon the difference in the length of the cephalic diameters engaged. Probably if flexion could be developed in the latter case, rotation would be rendered proportionately easy. It should further be borne in mind that the chief factor in the development of rotation is the general converging slope of the pelvic floor to the middle line and to the front. It is quite obvious that the mere twisting of the head by the hand inside the pelvis is a very partial imitation of, or substitute for, the natural mechanism, and unless the head is at the same time brought down and so kept in contact with the sloping floor, it seems inevitable that its immediate tendency will be to return to its former position.

The almost unfailing certainty with which a well-flexed occipito-posterior head will turn forward under the influence of normal uterine pains leads one to conclude that the natural mechanism will be most nearly reproduced, both as regards mode and result, if in those cases where flexion is imperfect and contractions are inefficient we adopt a procedure which will increase flexion and at the same time bring the head to bear on the sloping floor of the pelvis.

The axis-traction forceps, as has long ago been pointed out, possesses one outstanding advantage over the older instrument, in so far that the swivel joint by which the traction handle is connected with the rods in no way interferes with any natural tendency which the head may have to rotate in its passage through the canal. Provided, then, flexion is secured, these forceps should in no way interfere with the desired rotation of an occipito-posterior head.

Accordingly the question arises, how far the ordinary axis-traction forceps tend to promote flexion in an occipito-posterior head where that happens to be defective. In my former paper I discussed at length the essential advantage associated with the pelvic curve of the ordinary forceps, and I pointed out that the particular gain obtained by its use was that it grasped the head in such a way that in an occipito-anterior case it tended to favour or to increase flexion. It is impossible to apply a pair of straight forceps to an occipito-anterior case without seizing the head so near the sinciput that flexion is markedly impaired, provided regard is had to the integrity of the perineum. A moment's consideration will show that this very virtue of the pelvic curve in relation to occipito-anterior cases becomes a more or less manifest vice in relation to occipito-posteriors, for the grasp of the head in the latter case will be as effective in undoing flexion as it was effective in the former case in increasing it.

It seems essential, then, that some modification of the pelvic curve must be made if forceps are to be employed for the purpose of developing or increasing flexion in occipito-posterior cases. One of the arguments advanced by Leishman, Lazarewitch, and other advocates of the straight forceps was their usefulness under certain conditions in posterior cases. But one of the difficulties which must be obvious to any one who has attempted to apply the straight forceps to an occipito-posterior case is the amount of trouble involved in grasping the head in such a way that the forceps will not slip off. Further, it must be borne in mind that the ordinary straight forceps in no way favours the rotation which is so essential a part of the mechanism.

The ideal instrument for such cases will be one which, acting in the axis of the pelvis, seizes the head in such a way as—1st, to secure a firm hold; 2nd, to increase flexion; 3rd, to favour, or at least not to interfere with, normal rotation.

I venture to think that the instrument which I show you meets these requirements. If so, you will see that the end has been attained by very simple means. The only modification on the ordinary forceps consists of a flattening of the curve to a radius of 14 instead of 7 inches. By this means the head is caught sufficiently near the parietal bosses to secure a perfectly firm grip, which increases in certainty the more the occiput descends. Further, the flattening of the curve brings the blades to bear on the head in such a way as to depress the occiput, while, of course, the swivel action of the handle favours the forward rotation as descent occurs. I have used these forceps in five cases. In two of these cases flexion was well marked, but the labour was slow; rotation occurred in a perfectly satisfactory way, and in one of them I delivered over the perineum without altering the grip of the instrument. For though the concave side of the blade was lying backwards as the head passed over the perineum, the slight

EXPLANATION OF PLATES.

PLATE I.

Diagram to illustrate the principle of Adjustable Axis-traction.

The lines M¹ N¹ F¹ represent the inclination of the plane of the brim in *Justo-minor*, *Normal*, and *Flat* pelves respectively.

The lines M² N² F² represent the direction of the axis of the brim in these pelves.

A B, axis of blade of forceps.

C D, horizontal limb of traction rod.

The points M² N² F² on C D indicate the position of the traction handle when adjusted for traction through the planes M¹ N¹ F¹ in the axes M² N² F² respectively.

It is obvious that if the pelvic canal were straight, and the plane of the brim horizontal, the proper line of traction would be along the axis A B, and accordingly the greater or less the inclination of the pelvis and the plane of the brim, the greater or less must be the angle formed by the proper line of traction and the axis of the forceps A B.

PLATE II.

Diagram to illustrate construction of Adjustable Axis-traction Forceps.

The outline represents inner aspect of left blade of forceps.

A B, pelvic plane through which forceps is supposed to be acting for the time being.

D, middle point of blade.

C D E, part of circle of which an ar [illegible] through the middle of blade.

G H K, traction rod hinged to blade [illegible] K, [illegible] of which K H is the vertical and G H the horizontal limb.

N N¹, tangent to the arc of the blade at the point D. The point at which this tangent cuts the limb G H, is the point at which the traction handle must be fixed for traction in a *normally* shaped pelvis.

For traction in *Flat pelves*—that is to say, those in which the plane of the brim is more vertical than normal—the handle must be shifted on the limb G H, more or less in the direction F; and for traction in pelves in which the plane of the brim is more horizontal than normal, as in most *Justo-minor* and some others, the handle must be shifted more or less in the direction M.

PLATE III.

Adjustable Axis-traction Forceps.

PLATE IV.

Forceps for delivery in *Occipito-posterior cases.*

The blades are bent so that the pelvic curve has a radius of 14 inches as against 7 inches in the ordinary forceps.

They may be fitted with ordinary traction rods, or, as in this case, with adjustable traction rods.

Plate 1

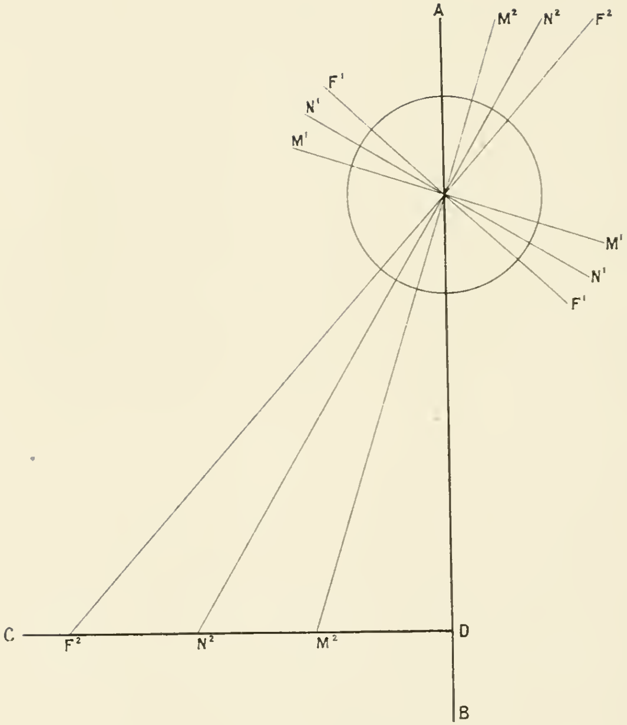


Plate I

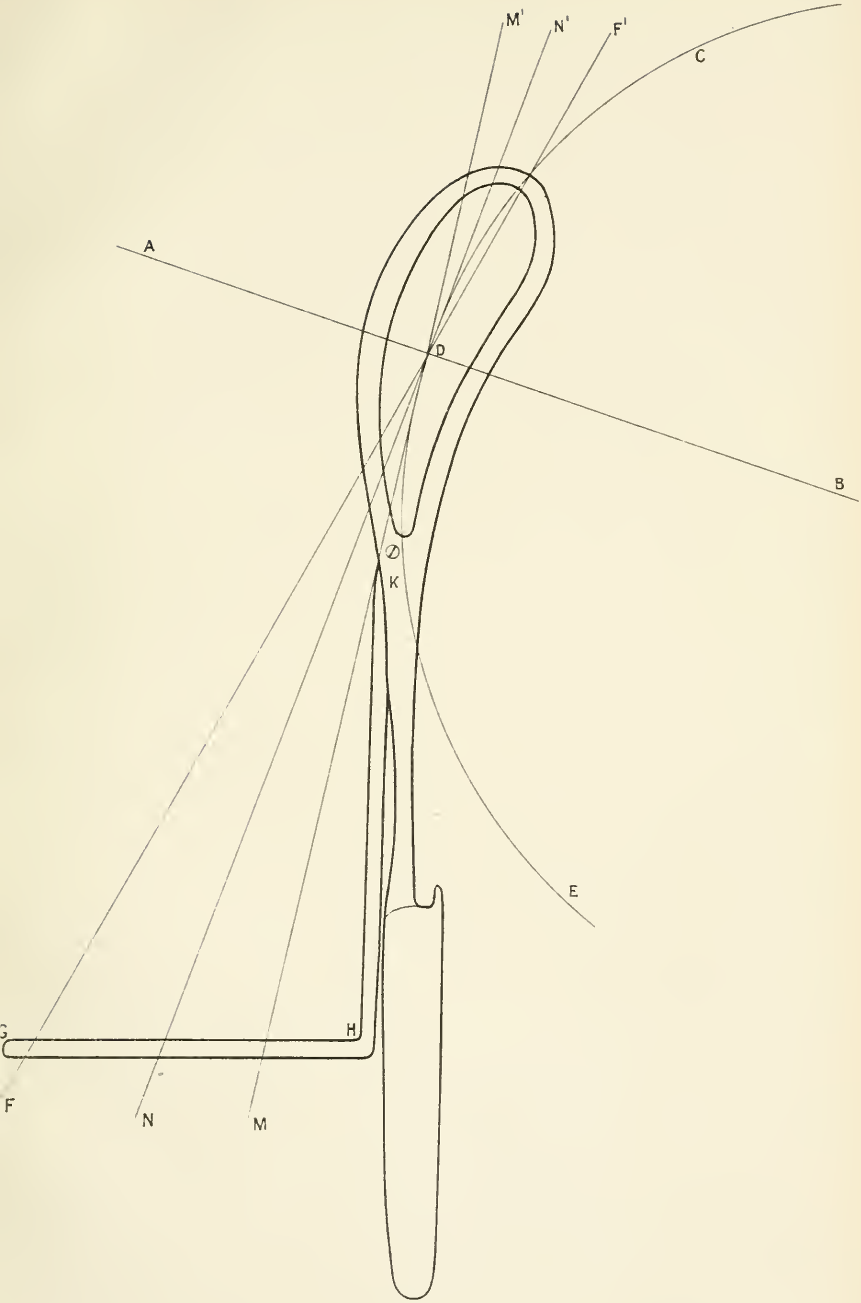
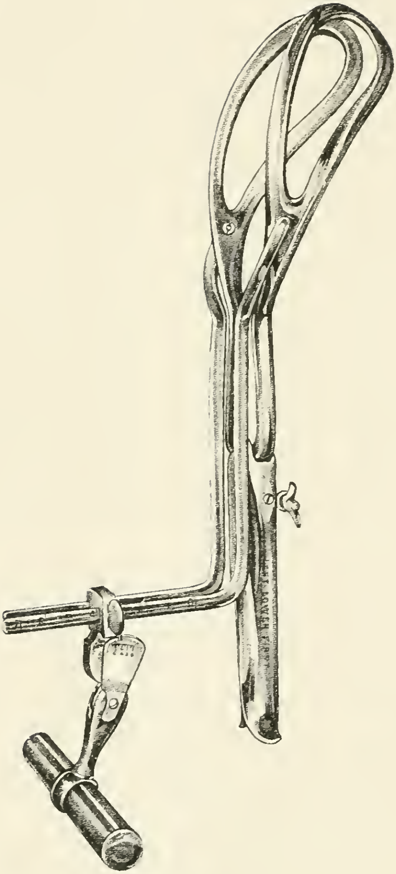
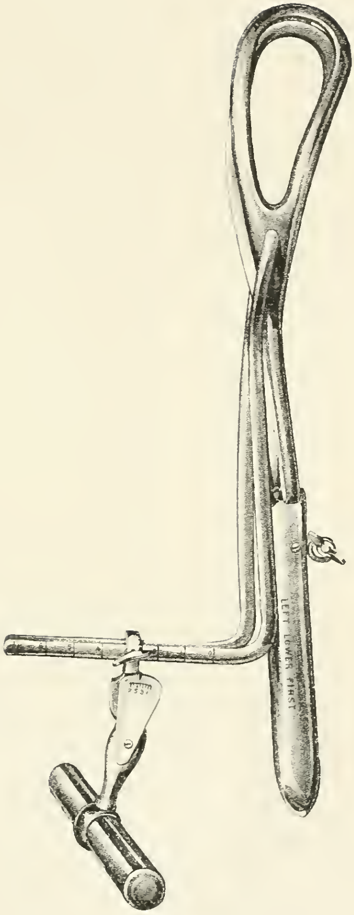


Plate III



Plate



curvature did not interfere with that structure. In two of the cases flexion was imperfectly developed, the anterior fontanelle being within easy reach; in one of these prolonged attempts had been made to deliver with ordinary axis-traction forceps. In both the application of these forceps was followed by the immediate development of flexion, and subsequently by anterior rotation. In the last, rotation did not occur, but delivery, as a persistent occipito-posterior without damage to the soft parts, was accomplished with remarkable ease.

In conclusion, I should like to point out that much of the success in the use of these and other forceps depends upon the manner in which the tractive force is applied. A uterine pain begins in an almost imperceptible fashion, its invasion is prolonged, and its climax reached with the finest progressive graduation of intensity. In this way the reaction of the resilient soft parts on the movement of the head is given full play, and their guiding effect on the advancing head-globe fully taken advantage of. It follows, then, that every tractive effort made by means of the forceps should follow the same rule. It is obviously of the utmost importance that the force should be applied as carefully and as gradually as is the case with the uterine pain. Any departure from this method, and the application of a sudden effort or "jerk," must so displace the more or less resilient soft parts, and almost entirely abolish any guiding inflence which they naturally possess.

VII.—SOME MODIFICATIONS OF MIDWIFERY FORCEPS.

By G. Owen C. Mackness, M.D.

(*Read before the Obstetrical Society of Edinburgh*, 13*th May* 1896.)

Before the principle of axis-traction by means of a supplementary handle was recognised and brought into common use, the ordinary handles of midwifery forceps played a far more important part than they at present do. Their function was twofold, viz.,—(i.) They served as a means for the introduction of the blades, and (ii.) they afforded a grip while traction was being exerted. In order to fulfil effectually this latter function, their construction was of necessity strong and large, in order that a firm grip of them might readily be obtained.

Later, when traction came to be exerted by means of the supplementary handle, the function of the original handles was still twofold, viz.,—(i.) As before, they served as a means for the introduction of the blades, and (ii.) they served as a guide for the axis of traction. Thus we see that while a new function is introduced, viz., as a guide for direction, the function that they principally fulfilled before, viz., as a means for the exertion of traction, is gone; and since it was for this latter use that they were made large, long, and cumbersome, therefore we see that the need for these large, heavy handles is gone, and all that we require are handles sufficiently long to enable us to apply the blades and to lock the forceps,—anything more than that being superfluous.

Some three or four years ago I was convinced that the ordinary handles were needlessly long and cumbersome, and consequently I got the forceps (Fig. 1) made. In them the handles are just half the ordinary length, viz., 3 inches instead of 6 inches, and since that time I have never used any forceps with handles longer than 3 inches. Moreover, I have used them in a very large number of cases, applying the forceps frequently above the brim of the pelvis, and I can confidently assert that this length is amply sufficient.

The advantages of the shortened handles are as follow:—

(i.) The forceps are far lighter, less cumbersome, and more easily carried either in bag or pocket.

(ii.) When forceps have to be applied with the patient in a confined space—*e.g.*, in a box-bed or without skilled assistance to get her into and maintain her in a suitable position—then naturally the shorter the forceps the more easily they are manipulated.

(iii.) In occipito-posterior cases, where rotation has not occurred, as traction is made on the forceps rotation takes place, and the handles of the forceps tend to catch on the thigh of the patient—most often, of course, on the left thigh—necessitating their removal and reapplication. Obviously the longer the handles the sooner they will jam against the thigh, or, if the knees are well drawn up, against the bed, so that with long handles it may be necessary in some cases to remove and reapply the forceps more than once before delivery is effected. When the handles are short, as in my forceps, they naturally catch less, and may in some cases even be steered clear of the thigh altogether, in which case they will certainly not be obstructed by the bed.

(iv.) Further, as the handles are shortened, the centre of gravity of the forceps is brought much nearer the points of the blades—*i.e.*, nearer the point where the power is applied to the fœtus in exerting traction, and the balance of the forceps is thus much improved.

After delivery of the head of the fœtus by axis-traction forceps, there is often great difficulty in removing the traction-handle from the rods. This is due to the large size of the fœtal head, or to the fact that a normal head has been caught in a long axis,—*e.g.*, in a case of flat pelvis; the blades of the forceps are then widely separated, causing an approximation of the ends of the rods, and a consequent jamming of the buttons in the slots of the handle. To obviate this I at first used two catches a short distance apart on the rods, so as to keep the rods parallel whatever the distance apart of the points of the blades. Further, these catches consisted each of a button passing through a slit and turning so as to be

FIG. I.

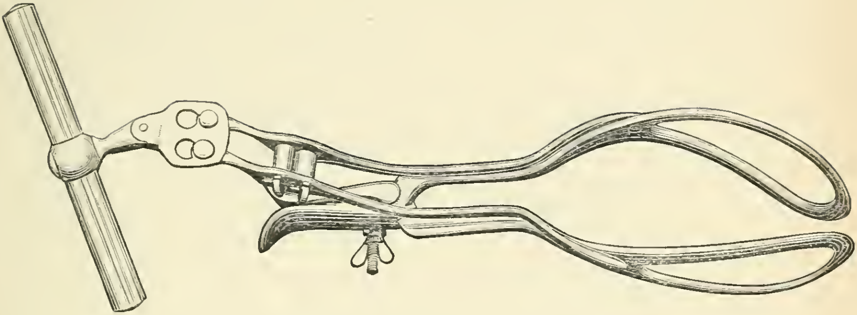
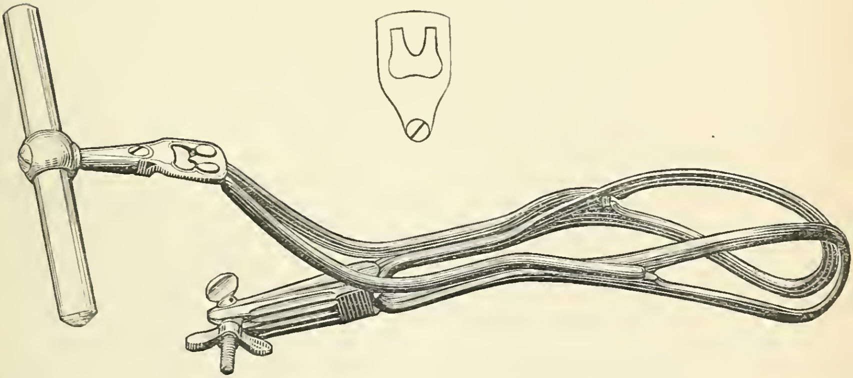


FIG. II.



retained in position (Fig. 1.) This arrangement works well, and can easily be rendered aseptic; its only drawback is that when the fingers are slippery the buttons are sometimes difficult to turn, a drawback that could, however, be easily obviated by roughening the buttons. I found, however, that there is no real need for any catch at all if the plate of the traction-handle is cut away as in the other forceps (Fig. 2), so that however much the buttons may be approximated by the separation of the points of the blades, yet they can always slip out quite easily.

Further, the ordinary lock at the side of the handles is exceedingly difficult to keep clean, and in my own hands has broken more than once. It has therefore been shifted to the end of the handle, where it is fixed by a removable pin, so that it can easily be taken off and cleaned. The end of the handle is so shaped that the screw will fold back, and thus less room is taken up in carrying.

The fixed traction-rods stick out very much from the forceps, and are very liable to get strained and bent when the forceps are carried with other instruments in a bag; while if carried in the pocket they are extremely bulky, and are still more liable to be strained. I have therefore had these forceps (Fig. 2) made with detachable rods, which easily slip into position, and on being turned round are retained by a button. The angle at which this button is fixed to the rod and the direction of the slit has been carefully worked out, so that the rod does not slip out while the forceps are being applied. The forceps are thus much less bulky and more readily carried; moreover, they are very much more easy to clean, since the point where the rod was fixed to the blade was always a source of danger as a spot where dirt easily accumulated and was very difficult to dislodge, while it is especially necessary that this part should be clean as it is frequently introduced into the uterus itself when the forceps are applied.

I have now used these forceps (Fig. 2) for some time, and find them to answer their purpose so well that I use no others. The detachable rods are, of course, a luxury, more or less; but I think that no one who gives the shortened handles a trial will ever go back to the long ones. Any length over the 3 inches is quite unnecessary for all practical purposes, and the long handles merely mark a stage in the evolution of the axis-traction forceps, showing how, first, there were ordinary long forceps with their big, heavy handles for pulling purposes; then how the principle of axis-traction was recognised, and traction-rods were fitted on existing forceps, while the big handles were retained although their principal function was gone.

The cutting away of the plate of the traction-handle will save endless trouble and often valuable time, as when the rapid removal of the forceps from the head of a partially asphyxiated fœtus makes all the difference as to whether its life is to be saved or lost. With this plate the handle can be removed at once and the blades separated; with the old one the buttons often jammed and much time was lost.

The forceps that I use, then, have handles only 3 inches long, roughened so that they do not slip in the hand; lock at the end of the handles, and removable; no lock to the traction-rods, but the plate of the traction-handle cut away as shown. The traction-rods may also be made removable for convenience in carrying.

These forceps have been made under my directions by Messrs J. Gardner & Son, Forrest Road, Edinburgh.

VIII.—TERATOGENESIS: AN INQUIRY INTO THE CAUSES OF MONSTROSITIES.

III.—The Theories of the Past (*Continued*).

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E.

(*Read before the Edinburgh Obstetrical Society, June* 10, 1896.)

Mental Influence.

Doubtless some modern writers may be inclined to cavil at the position which is here assigned to the theory of the influence of the maternal imagination in teratogenesis, for it is placed with the notions of the past, and not with those of the present. But I think that the arrangement is warranted, for it must be admitted that the theory of maternal (or paternal) mental influence as originally enunciated is indefensible. At the same time, the belief has a modern side, infinitely less repulsive to the scientific sense of inquiry; this side has, I believe, a just claim to credit. The hypothesis as originally stated is, I humbly think, untenable; it is truly a theory of the past. In its modern form, and with certain limitations to be referred to later, it is both tenable and credible; in this sense it can be properly termed a theory of the present. Still, when reference is made to the maternal impression theory in teratogenesis probably there is scarcely any one who thinks of it in any sense save in that old and extravagant one which demands belief in an absolute similarity between the thing producing the impression and the defect or anomaly resulting therefrom. In its generally accepted and classic sense, therefore, the hypothesis is of the past; but, like others of these ancient doctrines, it has its less widely known but vastly more reasonable modern development. In accordance with these circumstances, it has been placed with the theories of the past, but in juxtaposition with those of the present.

As will be made abundantly evident when the history of the belief in maternal impressions comes under consideration, the notion is one of great antiquity; but it may here be pointed out that it is also one of practically world-wide distribution. Ploss[1] has succeeded in gathering together indications of its existence in such far apart lands as India, China, South America, Western Asia, and East Africa; and I have elsewhere[2] quoted from various works to show that maternal impressions are not unknown among the Esquimaux, the Loango negroes, and the old Japanese. It is also, of course, the common possession of the nations of Europe. In fact, it may safely be postulated that the belief in the potency of maternal impressions has a geographical distribution corresponding with that of the human race, whilst in the matter of antiquity it is coeval with it.

It will now be well to trace so far as is possible the origin and growth of this ancient and well-nigh universal doctrine. In this way it will be learned that in its earliest beginnings it was not specially a teratogenic theory, but rather one used to explain how the young of men and of animals came to be of special colours, and especially of a tint differing from that of their parents; then it was accepted as the solution of the origin of mother's marks or nævi; then as a possible explanation of the birth of infants with hypertrichosis; and, finally, it came to be applied, and in most ingenious ways, to account for almost every kind of anomaly, malformation, and monstrosity. The story will be found to be one of no little interest, at times possibly also entertaining and even amusing.

Among the Hebrews.

Writers of all ages have commenced the history of maternal impressions with a reference to the patriarch Jacob and his triple artifice, by means of which he acquired a large number of speckled cattle of a vigorous breed. The sacred narrative tells[3] how Jacob first placed "rods of fresh poplar, and of the almond, and of the plane-tree," in which he had "peeled white strakes," before the flocks when they conceived at the water-troughs, "and the flocks brought forth ring-straked, speckled, and spotted"; having thus obtained some parti-coloured lambs, he put them (instead of the rods) before the flocks, and thus increased the number of such animals still more; and, finally, in order to get as vigorous as possible a breed of the parti-coloured, he put the peeled rods before only the stronger of the flock. "And the man increased exceedingly, and had much cattle, and maid-servants, and men-servants, and camels, and asses." From this it may be learned that Jacob was an expert stock-raiser well versed in all the notions of the age, which included a belief in the efficacy of maternal impressions upon the offspring at the time of conception. To attempt, as many have done, to use the narrative as a proof of the correctness of this ancient theory is manifestly unfair, for throughout the whole passage there is the thinly-veiled suggestion of an overruling Providence acting favourably to Jacob's plans.

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[1] Ploss, H., *Das Weib.*, 2nd edit., i. p. 505, Leipzig, 1887.

[2] Ballantyne, J. W., *The Diseases of the Fœtus*, i. pp. 30, 31, and 41, 1892.

[3] Genesis, chap. xxx., verse 32 to end. The quotations are from the Authorised and Revised Versions; in the Septuagint it is not nearly so clearly expressed.

In Ancient Greece.

Traces of this belief are also to be found in certain of the Greek writers, and Plutarch[1] states that Empedocles had remarked that women gave birth to infants resembling the statues which they had found pleasure in regarding during pregnancy. Allusions to the effect of pictures and statues seen by women at the time of conception or during gestation are to be found also in the law of Lycurgus, which required the Spartan wives to look upon the representations of the strong and beautiful, *e.g.*, statues of Castor and Pollux; and in the story of Dionysius of Syracuse, who hung the picture of Jason in full view of his pregnant spouse (T. Fienus, *loc. cit.*). There is, however, no absolute proof that Hippocrates shared in these beliefs, for the story which St Jerome and others tell concerning the use he made of this notion in the defence of a woman accused of adultery is not to be found in the Hippocratic writings.[2] Further, the statement that "if a pregnant woman has a longing to eat earth and coals, and eats of them, the infant which is born, carries on its head the mark of these things," occurs in the treatise *De Superfœtatione*, which practically all commentators regard as not the work of the Father of Medicine himself.

Among the Romans.

The following quotation from Pliny's *Natural History* (Holland's translation, p. 161) demonstrates that among the Romans a belief in the efficacy of both the maternal and the paternal mind in the moulding of the fœtus was prevalent. The writer speaks of the black child of a white mother, and then goes on to say:—"Certes the cogitations and discourses of the mind make much for these similitudes and resemblances whereof wee speake: and so likewise many other accidents and occurrent objects, are thought to bee very strong and effectual therein, whether they come by sight, hearing, and calling to remembrance; or imaginations onely received, and deeply apprehended in the very act of generation, or the instant of conception. The wandering cogitation also and quicke spirit either of father or mother, flying too and fro all on a suddaine, from one thing to another, at the same time, is supposed to bee one cause of this impression, that maketh either the foresaid uniforme likenesse, or confusion and varietie." For this reason Pliny thinks that men are more unlike one another than other creatures: "For the nimble motions of the spirit, the quicke thoughts, the agilitie of the mind, the varietie of discourse in our wits, imprinteth diverse formes, and many markes of sundrie cogitations; whereas the imaginate facultie of other living creatures is unmoveable, and alwaies continueth in one, in all it is alike, and the same still in everyone, which causeth them alwaies to engender like to themselves, each one in their severall kind."

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[1] Plutarch, *De placitis philos.*, lib. v., c. 12. Cited by Fienus (T.) in his *De viribus imaginationis*, p. 217, Lugd. Batav., 1635.

[2] Ballantyne (J. W.), "Ante-natal Pathology and Heredity in the Hippocratic Writings," *Teratologia*, ii. p. 279, 1895.

Galen,[1] also, believed in the power of the maternal imagination when influenced by pictures, etc.; and Soranus of Ephesus[2] spoke of the ape-like children which were born to women who had looked at monkeys at the time of conception. Oppian,[3] in his *Cynegeticon*, gave some interesting details concerning the application of the belief in the breeding of horses and doves of particular colours. Such statements, however, were not confined to what may be called the scientific literature of the age; for in the well-known romance of Heliodorus,[4] the belief is adduced to explain the colour of Chariclea, the white daughter of the black king and queen of Ethiopia, the queen having regarded a statue of Andromeda at the time of impregnation. It may be mentioned that Quintilian, in his *Institutiones Oratoricæ*, referred to a similar tale, only in this instance the parents were white and the infant black, and the cause was the picture of a Moor.

Among the Jews and Early Christians.

In the Talmud,[5] also, such stories are repeated, and there is an indication of a belief in the potency of impressions made in pregnancy *after* conception. The early Fathers of the Christian Church held similar opinions. St Jerome thought there was nothing strange in the infant bearing the impress of things seen or imagined at the moment of conception; and St Augustine, in his *Quæstiones in Genesim*, referred to the Biblical narrative of Jacob and his parti-coloured lambs.

In the Middle Ages.

Between the fifth and the fifteenth centuries little is recorded of the belief in maternal impressions, although it cannot be doubted that it existed. It would seem that Marcus Damascenus gave origin to the oft-repeated tale of the birth of a hirsute infant consequent upon the mother regarding the picture of John the Baptist in his hairy garment. St Isidore, also, seems to have warned women against looking at monkeys, cynocephali, etc., during pregnancy. The Arabian physicians had little to say on the subject, but Avicenna laid stress upon the belief that infants resembled in colour, etc., the things seen by the parents at the time of conception; and gave credence to the ridiculous story of a hen sitting upon her eggs being frightened by a kite, with the result that the chicks had heads like falcons.

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[1] Galenus, *De theriaca ad Pisonem liber*, c. xi.

[2] Soranus, Περὶ γυναικείων πάθων, c. x.

[3] Oppian, Κυνεγετικών, lib. i , v. 358.

[4] Heliodorus, *Æthiopica*, lib. iv., c. x.

[5] For Talmudic references, *vide* Preuss (J.), "Von Versehen der Schwangeren," *Berlin. klinik*, Heft 51, 1892.

From what has been said it will have been gathered that prior to the fifteenth century the notion of maternal impressions was a well-established one; but it is noteworthy that it does not seem to have been much employed to explain monstrosities, unless indeed we regard the abnormal colour of the skin, nævi, and hypertrichosis as teratological. Further, its efficacy, save at the moment of conception, was not widely recognised; indeed, there is only slight evidence to prove that it was ever supposed to be active in later pregnancy. Its existence, however, was admitted both in the human species and in some of the lower animals, and we read over and over again of the great influence of pictures and statues. The mental impression seems most often to have been one of admiration; rarely is the idea of fear or disgust hinted at.

With the Revival of Learning in Europe came a great extension of the doctrine of the influence of the maternal fancy (phantasia), or, as it was often called, "imaginatio gravidarum," "Einbildungskraft," and (more popularly) "Versehen."

In the Sixteenth Century.

In a work on the "imagination," by Francisco Pico of Mirandola,[1] published in the early years of the sixteenth century, no mention is made of any peculiar properties of the fancy in pregnant women; and Taruffi (*Storia della Teratologia*, i. p. 231, 1881) is of opinion that the omission indicated that the author discredited the belief, not that he was unaware of it. Whether this be so or not, Martin Luther, in his work on Genesis, regarded the notion as a "res certa et conveniens cum doctrina medicorum"; he also told a story about a pregnant woman who was frightened by a mouse. Lycosthenes[2] indicated the popular belief when he related how in the year 1282 an infant was born with hair and claws like a bear, and how the Pope of the time straightway ordered the destruction of all pictures of bears in Rome. The child belonged to the well-known family of the Ursini. It may be noted that this story was frequently repeated by subsequent writers, who, however, did not all see in it an instance of such an innocent cause as the mother's imagination. Both Cardan[3] and Porta[4] were firm believers in the theory that if a pregnant woman longed for anything and touched a part of her body the fœtus would show a mark of the thing desired on the part corresponding to that touched by the mother (*chirapsy*). They also ventured an explanation to the effect that the spirit of the mother is united with that of the infant, and the heat, which is the instrument of the spirit, moves the blood (which is at once disturbed by the desire of the mother) into the corresponding part in the fœtus. Luiz Mercado,[1] a Spaniard, had another theory of the *modus operandi*, for he thought that the imagination disturbed the action of the semen of one of the parents, and so led to the mark on the infant.

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[1] Francisco Pico of Mirandola, *Liber de imaginatione*, Venetiis, 1505.

[2] Lycosthenes (Conrad), *Prodigiorum ac Ostentorum Chronicon*, p. 445, Basileæ, 1557.

[3] Cardanus (J.), *Opera omnia*, De Sanitate tuenda, lib. i., c. 9, Lugduni, 1663.

[4] Porta (G. B.), *Magiæ naturæ*, etc., lib. ii., c. 23, Neapoli, 1558.

Lemnius,[2] in his interesting work, stated his preference for the doctrine of the maternal imagination over that of stellar influence; and Ambrose Paré,[3] in 1573, gave it as the fifth cause of monstrosities, mentioning the illustrative instances of black and hairy children already so often referred to. The latter writer also figured an infant with the face of a frog, which Bellanger, "a man of an acute wit," regarded as occasioned by the mother's holding a frog in her hand just before conception. Paré went on to say (I quote from Johnson's translation, p. 596):—"There are some who think the infant once formed in the Womb, which is done at the utmost within two and forty days after the conception, is in no danger of the Mother's imagination, neither of the seed of the Father which is cast into the Womb, because when it hath got a perfect figure it cannot be altered with any external form of things; which whether it be true or no, is not here to be inquired of: truly I think it best to keep the woman all the time she goeth with child, from the sight of such shapes and figures." Cautious Paré!

It is scarcely necessary to do more than mention some of the other references to maternal impressions found in the literature of the sixteenth century. Sebastian Munster,[4] for instance, tells how two women, one of them being pregnant, got their heads knocked together, and how in due time twins united by the vertices were born to one of them. J. Rueff[5] speaks of the grievous effects of terror induced by the sight of hares and other animals, and says—"Ex appetitu rursum et terroribus multi nascuntur, qui varias maculas et figuras corpori impressas habeant, puta, crinium, murium, variorum colorum, racemorum, flammarum, fructuum, rerumque aliarum." Jean Wier[6] and Cornelius Gemma,[7] and several otheis, participated in the popular belief, which even found its way into the non-medical literature of the time: witness the story of black parents and a white child in the twelfth canto of Tasso's "Jerusalem Delivered." This was indeed the age of the wonderful, and nothing seems to have been regarded as incredible. Profound indeed were the discussions regarding the cutting of a golden tooth by an infant in Silesia, in which Horstius,[1] Ingolstetter,[2] and Ruland[3] took part; and in Weinrichius'[4] quaint work entitled *De ortu monstrorum commentarius,* we read at great length concerning "*το φαντασικον*" and its supposed effects, about "fœtus ranæ facies," about "infans facie cadaverosa," and so on.

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[1] Mercado (Mercatus) (L.), *De mulierum affectionibus*, etc., lib. iii., c. 7, Valladolid, 1579.

[2] Lemnius (L.), *De miraculis occultis naturæ*, lib. iv., c. 18, 1564.

[3] Paré (A.), *Des monstres*, Paris, 1573.

[4] Munster (S.), *Cosmographie universelle*, lib. iii., Paris, 1575.

[5] Rueff (J.), *De conceptu et generatione hominis*, etc., lib. v., c. 3, p. 46, Frankforti ad M., 1580.

[6] Wier (J.), *De præstigiis dæmonum*, lib. iv., c. 18, Basileæ, 1563.

[7] Gemma (C.), *Cosmocritica*, Antwerpiæ, 1575.

In the Seventeenth Century.

In the succeeding century (the seventeenth) the belief in the teratogenic powers of maternal impressions reigned supreme. Scarcely a writer ventured to throw a doubt upon its accuracy, and the most far-fetched explanations of monstrosities and deformities were eagerly accepted by both the public and the profession. Credulity would indeed seem to have reached a maximum when it began to be asserted and believed that conception might occur through the imagination alone. Of course, little was at this time known of the physiology of generation and of intra-uterine life, else such assertions could scarcely have been entertained. Interesting instances illustrating this extraordinary development of the imagination theory were reported by Thomas Bartholin,[5] G. C. Petrus,[6] and E. S. Grass.[7] In the first of these we read how Magdalena of Auvermont gave birth to an infant although her husband had been absent from her for four years; and how the occurrence was explained by the fact that the lady had in her dreams imagined her husband to be present; and so the child (Emanuel) was conceived "sola imaginationis virtute." After matrons and medical men had given their evidence upon this matter, the Parliament of Grenoble in 1637 declared the child to be the legitimate son and heir of Hieronymus Augustus of Montleon, the husband of the aforesaid Magdalena.

Even in this credulous age, however, reports of cases like the above were rarities. Most authors were content to narrate how an already existing fœtus was altered; few had the courage to describe the creation of an embryo through the force of the imagination alone. Certain of the records of the time may here be briefly referred to.

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[1] Horstius (J.), *De auréo dente maxillari pueri Silesii,* Lipsiæ, 1595.

[2] Ingolstetter (J.), *De aureo dente Silesii pueri*, Lipsiæ, 1596.

[3] Ruland (M.). *De dente aureo pueri Silesii*, Francof., 1597.

[4] Weinrichius (M.), *De ortu monstrorum commentarius*, c. 17, p. 158, Breslæ, 1595.

[5] Bartholin (T.), *Hist. anat. et med. rar.*, Cent. v. and vi., hist. lxi., p. 296, Hafniæ, 1661.

[6] Petrus (G. C.), Conceptio hermaphroditica seu androgynea, *Miscell. curios. phys.-med.*, Ann. II., obs. ciii., p. 303, Jenæ, 1671.

[7] Grass (E. S.), Conceptus prodigiosus, *Miscell. curios. phys.-med.*, Dec. II., Ann. X., obs. lvi., p. 102, Norimbergæ, 1692.

In 1605 Riolan,[1] in connexion with a case of double fœtus, referred to the imagination theory, stating his preference for it over the competitive notion of Satanic influence; the birth of a child resembling a demon was not due to the activity of an incubus, but to the influence upon the mother of pictures of diabolic creatures. Doubtless the women of that day were, or ought to have been, glad to welcome this change in the teratogenic doctrines of the time, for the substitution of the maternal-fancy theory for that of Satanic or bestial intercourse rendered the birth of a malformed fœtus a misfortune, but not any longer a crime. Riolan also believed that while the imagination could alter the properties of the uterine contents, it could not change the species. Fienus[2] in his treatise on the powers of the imagination, devoted more than 150 pages to the discussion of maternal impressions and the various questions arising therefrom; but that he did much to clear up these matters can hardly be asserted. He related the story told by Philippus Meurs about the child with a mussel for a head, who nevertheless lived for eleven years, receiving liquid nourishment from a spoon into the gaping bivalve; of course the mother had longed for sea-mussels in her pregnancy. Concerning this extraordinary maid and her still more wonderful death (through the breaking of one of the shells), Fienus said "dico me non credere"; but he did not hesitate to accept many other marvellous tales.

Septalius[3] and Hildanus[4] also wrote upon maternal impressions; and Schenkius[5] and Bauhinus[6] frequently adduced them to account for various monstrosities. Licetus,[7] although holding more advanced views on ante-natal pathology, yet clung firmly to the theory of the mother's imagination in teratogenesis; but he restricted its power in certain directions, and did not believe that mutilated monstrosities and those showing excess of parts could be thus produced. He admitted the efficacy of the paternal imagination also (lib. ii., c. xlii.); but this could not be so powerful as the maternal, for the time of its action was limited to the venereal act.

It has been pointed out by Taruffi (*Storia della Teratologia*, i. p. 234) that Zacchia,[8] writing in 1621, had indicated weak points in the doctrine of the maternal imagination when he stated that if such things were true, then there would be no infants without marks, and some children would be spotted all over like leopards; but these arguments seem to have fallen on deaf ears, a fate which also met Santorelli's[1] statement, made thirty years later, that monstrosities were borne by women who had experienced no impression whatever. Whilst, however, one is willing to give to these Italian observers credit for critical views regarding the popular theory of their time, it must be confessed that their notions found little or no support till many years had passed. The writers who immediately followed held an almost unquestioning faith in the potency of the mother's imagination; and reference may here be made to Aldrovandi's[2] work and to that of Stengelius,[3] in both of which the matter is dealt with. Of course these authors recognised not only this but many theories of teratogenesis.

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[1] Riolanus (J.), *De monstro nato Lutetiæ anno Domini* 1605, Disput. philos., Parisiis, 1605.

[2] Fienus (T.), *De viribus imaginationis tractatus.* Quæstiones xiii. to xxiii., Louvain, 1608.

[3] Septalius (L.), *De nævis*, Milano, 1605.

[4] Fabricius de Hilden, *Observ. et cur. chirurg.*, Cent. iii., obs. 56, Francoforti, 1646.

[5] Schenkius (J. G.), *Monstrorum historia memorabilis*, Francofurti, 1609.

[6] Bauhinus (C.), *De hermaphroditorum monstrorumque partium natura*, 1614.

[7] Licetus (F.), *De monstrorum natura*, etc., lib. ii., c. ix., xi., xix., etc., Patavii, 1616.

[8] Zacchia (P), *Quæstiones medico-legales, in quibus*, etc., i., lib. vii., Romæ, 1621.

Towards the close of the seventeenth century observations on the supposed results of the mother's fancy multiplied enormously. Thus Kerkring (1)[4] puts on record the birth of what was evidently an anencephalic fœtus, but whose appearance, taken in conjunction with the mother's history, led the midwives to call it a devil—"diabolum non hominem esse conclamitant mulierculæ." He also told of a woman whose occiput was fractured in her pregnancy; the infant's head had no occiput. Swammerdam (2) opened up new ground when he narrated how a clever woman counteracted her own impression: she saw a negro in her pregnancy, and to prevent her child being black she washed herself in warm water; the matter turned out well, for the infant (who, by the way, was born with teeth) was white save between the fingers and toes and in the grooves on the face, places which the mother in her washing had evidently neglected.

One of the most frequently quoted stories of maternal influence upon the fœtus *in utero* is that taken from Malebranche's work (3), in which it is stated that a pregnant woman after having seen a criminal broken on the wheel, gave birth to an idiot boy, whose limbs were fractured. He also wrote of a woman who from much gazing at a picture of St Pius was delivered of an infant closely resembling the saint. "'Tis what all Paris may have seen as well as I, since it has been for a long time preserved in spirits of wine." With regard to the first of these tales, Malebranche had no difficulty in explaining all the phenomena to his own satisfaction. "Children," said he (to quote from Blondel's translation), "see what their Mothers see, they hear the same Cries, they receive the same

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[1] Santorelli (A. da N.), *Antepraxis medica*, lib. ii., c. xiii., par. 35, Neapoli, 1651.

[2] Aldrovandi (U.), *Monstrorum historia*, p. 384, Bononiæ, 1642.

[3] Stengelius (G.), *De monstris et monstrosis quam mirabilis*, etc., p. 179, Ingolstadii, 1647.

[4] In order to avoid overloading the text, references from 1670 onwards are gathered together in one list and referred to by figures in brackets.

Impressions of the Objects, and are moved by the same Passions. All the Blows given to the Malefactor did violently strike the Mother's Imagination, and, by a Counter-blow, the tender and soft Brain of the Child. The Fibres of the Child's Brain, not being able to resist the Torrent of the Spirits, were broken : That's the Reason why he came into the World without Understanding. The violent Course of the Mother's animal Spirits, went, with Force, from her Brains, to the several parts of her Body, which answered to the Parts of the Malefactor. 'Twas the same in the Child, but because the Bones of the Mother were capable to resist the Violence of the Spirits, they were not wounded. Perhaps she did not feel the least Pain; but this rapid Stream of the Spirits was capable to carry away the soft and tender Parts of the Bones of the Child." This sad result would have been avoided had the mother known and practised Malebranche's instructions—"si cette mère eut determiné le mouvement de ses esprits vers quelqu' autre partie de son corps en se chatouillant au ce force, son infant n'auroit point eu les os rompus."

Dolæus (17) attempted a more physiological explanation of the *modus operandi* of maternal impressions, and held that the image in the mind was involuntarily communicated to the animal spirits, which impressed it upon the fœtus by means of the nerves of the uterus. The movements of the heart and intestines proved that the animal spirits were capable of involuntary motion. This theory was accepted by other writers, among whom was Bandiera (21), who, however, by bringing in the paternal imagination, which, of course, can only act at the time of conception, rather stultified the notion, for there is no nervous connexion at that epoch.

The remaining contributions of this century may now be summarized. Bayle (9) dealt with the matter of maternal impressions, and regarded it as an endless task; Boyle[1] repeated a tale about a speckled child whose mother had (before pregnancy !) gazed long and earnestly at some red pebble-stones near St Winifred's Well,—and yet his mind also conceived Boyle's Law of the relation between volume and pressure!; Diemerbroeck (13) was so sure of the theory that he employed it in his scheme of heredity; and Fidelis (4) used it to explain why deformed parents had not always deformed children. In the pages of a periodical called *Zodiacus medico-gallicus* Nicolas de Blegny (10) and Cuchotius (12) recorded further instances of maternal impressions. Finally, the volumes of the *Miscellanea curiosa* are full of cases of fœtal monstrosities ascribed to the influence of the mother's mind and imagination. Amongst these may be mentioned the contributions of Ludovici (6), Segerus (7), Mercklinus (8), Sommerus (11), Albrecht (14), Fehrius (15), Göckelius (16), Hoffmannus (18), Lentilius (20), and Reiselius (22).

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[1] Boyle (R.), *Exper. Philos.*, p. 151.

In the Eighteenth Century.

In the seventeenth century the attitude of the profession towards the doctrine of maternal impressions was one of blind credulity; but in the eighteenth this was quickly changed for one of sceptical criticism. Of course, there were still many who in the latter century believed in the efficacy of the mother's mind in moulding the unborn infant; but the prevailing opinion was one of grave doubt. It would have been strange indeed if this had not been so, for the discoveries of the close of the seventeenth century had done much to clear up many of the vexed questions of reproduction and antenatal physiology.

In the early years of the century, criticism was not yet rife. Düttel (24), for instance, in his work on fœtal diseases, clearly stated his views: "So great," said he,[1] "is the sympathy between mothers and the fœtuses which they carry in the uterus that they suffer closely with them, to such an extent that not only are the delicate fibrillæ of the infants excited to anomalous movements by every severe affection of the mind of the mother (*e.g.*, sorrow and anger), but, what is more, the formation of parts is altogether prevented, disturbed, or vitiated by the strong imagination of the mind." In the *Miscellanea curiosa* cases of maternal impression continued to be reported (23, 26, 35, 36, 38, 40, and 41); and in England Daniel Turner (28) stated very confidently his belief in such occurrences, for after enumerating most of the cases to which reference has been made above, he said: "Thus is it made apparent by a Multitude of Examples, how manifest and great an Empire the *Fantasy* of a pregnant Woman has over the Blood and Humours together with the Spirits of her Body, and how by their Ministry she is able to give not only monstrous Shapes and Figures to that of the more tender *Fœtus*, but to communicate Diseases also." He also related cases from his own practice of a raspberry mark near the eyebrow, of a currant-like excrescence on the internal canthus of the eye, etc. In the year 1726 the matter of maternal impressions was brought still more prominently before the profession and the public in England in connexion with the notorious case of an "Extraordinary Delivery of Rabbets," which was alleged to have occurred in the case of Maria Tofts of Godlyman (Godalming) in Surrey; she had had a great longing for "Rabbets" in early pregnancy. (Nos. 29, 30, 31, 32, and 33).

It is probable that the "Godlyman" case, in conjunction with the appearance of Turner's appreciation of the doctrine of maternal impressions, stirred up Blondel (34) to write his famous criticism thereupon; but already in the year 1712 Nigrisoli (27) of Ferrara had argued against the popular belief, and had pointed out that the fœtus was entirely separated from the mother, that monstrosities occurred in animals in whom they could scarcely be ascribed to imagination, and that in the human subject deformities were met with for which no disturbing impression could be alleged. To Blondel (34), however, belongs the credit of dealing to the maternal impression theory the most deadly blow it had yet received. Very skilfully did this writer marshal his facts; and with no small degree of humour, and now and then some biting sarcasm, did he state his arguments and refute the assertions of those whom he delighted to dub the "imaginationists." In the first instance, his satire was specially directed against Mr Daniel Turner; but he did not spare other, older, and more widely-known exponents of the imagination theory. The first edition of Blondel's work (34) was published anonymously in 1727, at least on the title-page the author was simply described as "a member of the College of Physicians"; but in the second issue (37) of the book, in which were many additions and amplifications of the argument, the writer openly avowed himself, not "out of ostentation," as he said, but to show "that I dare face the enemy."

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[1] Ballantyne (J. W.), "The First Monograph on Fœtal Diseases," *Teratologia*, i. p. 41, 1894.

Blondel arranged his facts and arguments with intent to prove that the current theory was unsupported by experience, by reason, and by anatomy. With regard to experience, he showed that impressions often occurred which were not followed by marks or anomalies in the fœtus, and that deformities were met with in cases in which no impression was alleged. Further, he analysed in detail the exceptional cases in which it had been maintained that a definite impression had resulted in the production of a similar mark on the infant; and under such pithily descriptive epithets as "Parey's Frog," "Miss Muscle and the Grenadier," "the Baker bit," "Sir Kenelm Digby's Patch," etc., he subjected to much ridicule the illustrative instances gathered (mostly from Fienus) with great care and apparently with almost perfect faith by Daniel Turner. Having dismissed these, Blondel turned his attention to the story of Jacob and his rods, which curiously enough seems greatly to have exercised him. Most will agree that he was at altogether unnecessary pains to explain away this particular case. The author concluded that there "are so many odds against imagination that the cases related in its favour can never over-balance those which are against it," and in his opinion they "may be compared to an accidental hit of a dream or the predictions of a Fortune-teller, which, now and then, are accomplished."

Blondel, then, having "entirely beat the Imaginationists out of their Entrenchments of Experience," attempted to show that reason also was against the popular belief. Conception, the growth of the embryo, and the determination of its sex were all outside the power of the mother's will. "How," he said, "can anybody believe, without reflecting upon the Wisdom of God, that it is left to her to disfigure the child, and to spoil the regular Work of Nature?" Again, since the woman cannot by her imagination mark her own body, it does not seem probable that she should be able to act thus on her fœtus. Other arguments were advanced, and then the writer pointed out that there exists no communication of nerves between the mother and fœtus, and so there could be no communication of thoughts, as alleged by Malebranche and others. In his efforts to absolutely extinguish any flickering flames of belief in the imagination theory, Blondel adopted the erroneous doctrine of the pre-existence of all the parts of the fœtus somewhere before conception. By what means, then, can the mother's imagination obliterate the lineaments of the fœtus, which were pre-existent to conception and subsisting ever since the creation of the world? Finally, anatomical reasons are adduced to show that there is no direct circulation of blood between mother and fœtus, and Blondel refers to the much more probable natural causes of fœtal marks, such as intra-uterine diseases or traumatism and heredity.

Blondel's work, which I have thus attempted to epitomize, produced a great effect upon medical opinion all over Europe, and soon numbered adherents in nearly every civilized country. In France, for instance, not only did translations of the English physician's work appear, but Bellet (48) also wrote a book to combat the popular belief in impressions. In Germany, also, Haller (56) to a large extent threw the weight of his authority into the scale against the popular theory; and, in Russia, Roederer (58) did likewise, though with less effect. In Scotland Alexander Monro (39), in his essays on the nutrition of fœtuses, showed clearly that he was an opponent of the maternal imagination theory, for he wrote (in 1734) as follows:—"The Liquors sent into the *Fœtus* by the umbilical Vein not having their propelling Force communicated from the Mother, the State of the Mother's Pulse cannot affect the Child otherwise than by occasioning Abortion, or vitiating the Fluids that are to be absorbed; and therefore we may be convinced, how vain it is to pretend to account in a physical Way for the Impressions said to be made on Children by the Imaginations of the Mothers." Monro's correct views on fœtal physiology along with their bearing on impressions seem, however, to have been overlooked by succeeding writers. Vari (62), in Italy, was at first a supporter of Blondel's position, but afterwards through a personal experience came to change his views. Plancus (55), another Italian, entirely sided with Blondel.

Whilst, however, the spirit of criticism was thus infused into the subject, there was still in the minds of many authorities a firm belief in the potency of maternal impressions as teratogenic factors. Superville (44), for instance, after relating how seven pigs taken from a freshly slaughtered sow all showed the bloody mark of the knife about their necks, proceeded to state his adherence to the theory of the influence of the "disturbed and disordered imagination of females." He referred to certain objections to the belief, and then said,—"I own I do not comprehend it neither. It does not follow from thence, that we ought to reject as false all that our Reason cannot penetrate into." Gregory (45), writing soon after, seems to have had even less doubt, for he told how a pregnant woman "took prodigious notice" of a monkey with a hood turning on a stick, and how the fœtus *in utero* turned over and over in like manner (for were there not twists in the umbilical cord?), and when born was seen to resemble closely a hooded monkey. Nicolai (50) tried to refute Blondel's opinions; but (54) had to admit that monstrosities did not resemble the subjects of the impression.

It must also be borne in mind in estimating the influence of the writings of Blondel and his followers that on the Continent the great weight of Boerhaave's authority (49) had been in favour of the old theory, with certain reservations regarding the sort of impression and its mode of incidence. Boerhaave's commentator, Van Swieten (43), seems to have been much struck by the life-like representation of a caterpillar on the neck of a young girl whose mother had in her pregnancy been impressed by a real caterpillar crawling on her neck. Another defender of the imagination theory was Krause (59), whose dissertation obtained special honour at the Imperial Academy of Science in St Petersburg; he alleged the existence of a nervous communication between the mother's uterus, the placenta, and the fœtus, and had no difficulty in understanding how disturbances of the mother could deform the infant, especially since the organs of the latter were so tender.

Boerhaave, however, was not always so fortunate as to have a commentator willing to accept all his views on the subject of maternal impressions. Albert von Haller (66), in fact, did much to support Blondel's criticism, whilst he also established it on more scientific arguments. For instance, he maintained that if there existed a nervous communication between mother and fœtus, then the gathering together of the placental nerves in the umbilical cord would constitute so evident a strand of nerve tissue that no observer could possibly overlook it. If, again, the communication was a vascular one—and this might be admitted—how could images of things be transmitted by means of a column of liquid in a tube. The birth of twins of different colour was explicable in a more prosaic manner than by the invocation of the mother's imagination. Nævi, according to Haller, were due to skin disease, and monstrosities were the result of fœtal maladies. It does not appear that this author was altogether opposed to the doctrine of impressions, for he seems to have been struck by the fact that children resemble their parents, and to have regarded it as an argument in favour of the theory. Smellie (57), who lived about the same time, was, doubtless, sceptical also, for after noting two cases, he wrote: "Notwithstanding these examples, I have delivered many women of children who retained no marks, although the mothers had been frightened and surprised by disagreeable objects, and were extremely apprehensive of such consequences."

Morgagni (63) was yet another well-known writer of this period who hesitated about throwing overboard the theory of impressions; he believed that while most cases in which a fœtal defect resembled a maternal impression were accidental coincidences, yet some contained another element which he freely confessed that he did not comprehend.

Between the years 1760 and 1780 it ought to be noted that several popular statements of the anti-imaginationist side of the matter were put before the British public in the form of "letters" or "essays" from anonymous authors, addressed to "the ladies" or to "a married lady" (*vide* Nos. 64, 65, and 71). In these works the arguments used by the writers to convince their fair readers are often interesting and even amusing. In one (65), published in 1765, the author says, "a mark which has been foretold has once in 1000 times happened to answer its description; another effect of chance, which may serve to support the prejudice of those who do not reason, but can have no influence on those who, like you, madam, are only convinced by truth." Another author (71), writing in 1772, sums up as follows: "The same chain of ideas, that shows the impropriety of believing the cure of a toothache by a charm; the destruction of warts by turning thief, and stealing raw meat; the cure of the cramp by wearing rosemary, or placing the soals of our shoes uppermost when we go to bed: I say, the same chain of ideas that shows the impropriety of believing these absurdities, will, when applied with a real desire to be informed, whether the imagination in pregnant women possesses the powers ascribed, convince the enquirer that the tales told of the mother's imagination exerted on the fœtus, are a collection of falsities formed by superstition and ignorance, and continued by prejudice and credulity."

The last years of the eighteenth century did little to settle the question of the potency of the mother's imagination on the fœtal form. We find, in fact, that the minds of the writers of the time were greatly exercised with the side question—a theological one—concerning the result which an acceptance of the imagination theory would have upon the idea formed of the Creator of the Universe. To the discussion of this matter Rickmann (70), Arnold (72), Engelhardt (82), and others devoted themselves; but into their arguments it is unnecessary to enter. Other writers, some for and some against the popular theory, were Eller (68), Kooy (69), Schönwald (73), Schenk (74), Jennet (75), Bablot (77), Hoffmann (78), Fielitz (79), and Schumann (80); but the enumeration of their names must suffice for the purposes of this sketch.

It may be of interest to the curious to know that near the close of the eighteenth century the money value of a maternal impression (of a patriotic kind) was fixed at 400 francs per annum; for

Geoffroy Saint-Hilaire (*Histoire des Anomalies*, i. p. 332, 1832) records that in the third year of the French Republic an infant was born with the representation of a Phrygian cap of liberty on the left breast, and to the mother the Government awarded the above sum, presumably for patriotism!

(*To be continued.*)

Part Second.

REVIEWS.

A System of Medicine, by many Writers. Edited by THOMAS CLIFFORD ALLBUTT, M.D., LL.D. Volume I. London: Macmillan & Co., Limited: 1896.

To write a system of present-day medicine is a task far beyond the powers of a single man. An ideal system must be the outcome of different minds labouring in different branches of the wide domain. Of such a system we have the first volume before us, a volume well bound, beautifully printed, and with the few illustrations given well executed. The list of contributors contains many names familar to the student of medicine—names which are a guarantee of the excellence of the work.

The volume opens with a philosophical introduction by the distinguished editor. One sentence is well worthy of note. Clinical diagnosis, Dr Allbutt says, is not investigation—diagnosis depends not upon all facts, but upon crucial facts.

The first division of the volume is devoted to Prolegomena, a somewhat varied group of articles headed by Medical Statistics by Dr Billings, the well-known editor of the Surgeon-general's Catalogue and of the *Index Medicus.* Many tables are given, and the short article is instructive, though not light reading. Then follow Anthropology and Medicine; Temperament, that ill-defined combination of mental and physical characteristics; the Laws of Inheritance in Disease, by Jonathan Hutchinson; and an interesting chapter on the Medical Geography of Great Britain, but we do wish the author had left out Hippocrates, for though the editor states that historical matter has been for the most part omitted, still the Father of Medicine appears on the stage on occasions. Inflammation is undertaken by Dr Adami, and is a most exhaustive and well-written article in three parts, with a very full bibliography of select references, which occupies five pages. The doctrine of Fever is treated by Dr Burdon Sanderson. Beginning with Virchow's doctrine of fever, his views and those of his most distinguished contemporaries and successors in the field of pathology are reviewed and discussed. The second part of the article deals with the pathology of fever since Cohnheim's death in 1874. The concluding section is devoted to a consideration of the author's own views.

The General Pathology of Nutrition is from the pen of Dr Mott, and the Pathology of New Growths from Drs Shattock and Ballance. Both papers are interesting, and give a full account of our present knowledge. Then follows an article on the Principles of Drug Therapeutics; an historical sketch is given, followed by a *résumé* of the general principles which should guide the physician in the selection of a drug in a given case. A number of miscellaneous articles complete the Prolegomena — Climate, Artificial Ærotherapeutics, Hydrotherapeutics, the Principles of Dietetics, Massage, etc.

Nursing, by Miss Amy Hughes, is an eminently practical article, which tells the medical man what to expect of his nurse; the remarks on private nursing are especially valuable.

The second division of the volume treats of Fevers. The first part, an article by Sir Joseph Fayrer, on Naucleation, is a brief and practical statement of the statistics and treatment of the condition. One could have wished that the morbid anatomy and pathology of the condition had been more fully discussed from the author's wide experience; the morbid anatomy, indeed, is dismissed in a small half-page. The second part treats of the Infective Diseases, beginning with the General Pathology of Infection, by Dr Kanthack, in an able and very complete essay. The different infective diseases are classified on a rational basis into those of established bacteriology, those of uncertain bacteriology, those communicable from animals to man, and the diseases due to protozoa. Much space is naturally devoted to Diphtheria, which is discussed in all its bearings by Drs Gee, Thorne Thorne, Kanthack, and Herringham. The volume includes Enteric Fever and Cholera, and ends with Relapsing Fever.

The volume, taken as a whole, gives promise that the *System* will be a most able and exhaustive work of reference. The writers have been judiciously selected, and have done their work well. There is not much of the usual overlapping, and few cross references, and in most cases the reader has been spared historical work. The volume is a useful size, from the reader's point of view. The *System* should take a place as the first work of reference on Medicine in the English language.

Occasional Papers on Medical Subjects, 1855-1896. By W. HOWSHIP DICKINSON, M.D., F.R.C.P., etc. London, New York, and Bombay: Longmans, Green, & Co.: 1896.

DR DICKINSON has been well advised when he resolved to publish under one cover a number of his papers on medical subjects, which have appeared in medical journals during the last forty years. Many of the papers contain much that was novel at the time of their publication, and it is interesting to observe how the great majority of the conclusions adumbrated therein have been corroborated and sustained by later experience. The author is nothing if not philosophical, save being an accurate observer of facts, and his papers show his philosophy to be grounded on a true logical basis, in that most of his theories have since been accepted and confirmed. Only two of the seventeen *opuscula* have not been published before, and the reader will probably turn to them first. One treats of the Presystolic Murmur, falsely so-called, and is a closely reasoned appendix to two papers published in the *Lancet* in 1887 and 1889. The other is in praise of the treatment of rheumatism by alkalies. Dr Dickinson's views on the presystolic mitral murmur are well known, but it is an advantage to have a further and more matured presentment of their *pros* and *cons*, in order that the author's defence against the criticisms of others may be read.

The treatment of rheumatism by alkalies in the author's hands has answered well when massive doses were given. Here is a note of his procedure. A drachm of bicarbonate of potash, with 15 grains of salicylate of soda, given four times at intervals of two hours, two or three at intervals of three hours, and thereafter every four hours day and night. Smaller doses are little use; the urine must be kept alkaline, and if this be done cardiac complications are rare.

It is seldom that a volume of collected papers, ranging over the wide interval of forty years, read so freshly and contain so much of present interest as those before us.

Aids to Medicine. By NORMAN DALTON, M.D., F.R.C.P. London: Baillière, Tindall, & Cox: 1896.

DR DALTON in writing this work has sacrificed everything to brevity. He has attempted an almost impossible task, for to reduce even the essential principles of practice of physic, pathology, and therapeutics to the bulk of two volumes so small that they may be carried in the trouser pockets, as is there attempted, is hardly feasible. The work is not one to be commended; it is not sufficiently full or accurate to be of any service to the practitioner, and it is not one to recommend to the student, as its only effect would be to divert his attention from more profitable reading.

The Malarial Fevers of Baltimore: The Johns Hopkins Reports. Vol. V. By Drs W. S. THAYER and J. HEWETSON.

THE authors have done some capital work with regard to the investigation of malaria in Baltimore, especially with reference to the hæmatozoa observed in the blood. They say that except in two or three instances, where the patients entered the hospital during convalescence, the specific micro-organism was found in every case of malarial fever treated in the wards. This publication may be regarded as a monograph on the subject, and will well repay the perusal of all interested in malaria, and the bibliography which is given of 359 works is very valuable.

In Baltimore three types of fever are met with—1, Tertian fever; 2, quartan fever, regularly intermittent fevers; 3, æstivo-autumnal or irregular fevers. The cases investigated and analysed were 544 in which the type of organism was clearly distinguished. The number of cases dealt with was 616, of which 476 occurred between the ages of 10 and 40. Male patients predominated, as about 3 to 1. Coloured patients were only 4·7 per cent. of the total, thus upholding the generally accepted view that the Negro is relatively insusceptible to malarial infection. September and October appear to be the fever months in Baltimore.

One or two notes may be given with regard to the general summary of some of the more important symptoms and complications. Chills occurred in 479 cases, chilly sensations in 41; vomiting is noted in 84 cases, though it probably occurred in many more; epistaxis occurred 19 times; diarrhœa occurred in 80 cases, constipation in 161; there was alternate diarrhœa and constipation in 5; the bowels were regular in 157; and the remaining cases were not noted. The analysis of urine was made in 335 cases, with the following results—the urine was normal in 151 instances, albumen was present in 133 cases, casts of renal tubules were found in 31, the diazo reaction was present in 18, acute hæmorrhagic nephritis was present in 3, severe subacute diffuse nephritis in 1. In not a single instance of malarial fever was hæmaturia present, with the exception of the three cases of acute nephritis, where the blood was present merely in the shape of altered red corpuscles giving a smoky colour to the urine. In 94 cases pallor was noted, in 21 there was grave anæmia. With regard to cutaneous manifestations, in 61 cases herpes labialis was noted; in 3 a petechial eruption; in 3 an eruption suggesting the rose spots of typhoid fever were found, in 1 general erythema, in 1 a rash resembling measles, in 1 eczema, in 1 a variola eruption. Urticaria was present during the paroxysm in three cases, and herpes zoster was present in one case. Bronchitis was noted in 16 cases, while a number of others suffered from slight cough without physical signs being present.

In the analysis of the types of fever associated with the different types of organisms, we find that, with regard to tertian infections, of which there were 339 cases, single infections occurred in 151, double in 188. With regard to quartan infections, there were 5 cases; single infection occurred in 2, triple in 3. In 105 cases of æstivo infection observed in the hospital, the paroxysms were more varied. In 38 cases quotidian intermittent paroxysms occurred, in 16 daily paroxysms with a tendency to become continuous, in 13 continuous fever with quotidian exacerbation. Tertian intermittent paroxysms occurred in 6 cases, continuous fever with no sharp paroxysms in 9, and normal or subnormal temperature was noted in 8 cases and moderate irregular fever in 8.

Indefinite, 7. In all cases the characteristic organism was found; but in the cases where no fever was present, only the crescentic or ovoid bodies were noticed.

The authors note that the æstivo-autumnal fever is much more resistant to quinine than tertian and quartan infections, though, when given in sufficient doses, the specific action is always manifest unless the case be one of pernicious fever resulting fatally before the drug has had time to act.

No systematic study of the action of quinine was made either upon the fever or the parasites, but the authors' observations tend to support the views advanced by Golgi, that the time at which the malarial organism is best attacked is just at the period of segmentation. In dealing with the tertian organism, they found that 5 or 10 grains of quinine given just before the paroxysm, was followed by an almost complete obliteration of the group of parasites then undergoing segmentation. When the parasite is in the endoglobular stage (between paroxysms) quinine has relatively little effect, though on many mild tertian stages it will succeed even in this stage in preventing an approaching chill, if given ten or twelve hours before a paroxysm. In quartan infections the same rules appear to hold good. The authors think that the methylene blue treatment is materially less efficacious than quinine.

The paper is accompanied by two exceedingly good plates of the malarial organism.

A Study of some Fatal Cases of Malaria, by L. F. Barker, M.D., published in the same volume, is interesting. Four detailed postmortem examinations are given, and the author makes some interesting observations with regard to the unequal distribution of the parasites in the body in malarial infection and on phagocytosis in malaria. The paper is accompanied by three plates of the liver and one of the spleen.

Injuries and Diseases of the Genital and Urinary Organs. By Henry Morris, M.A., M.B. Lond., F.R.C.S. London, Paris, and Melbourne: Cassell & Company: 1895.

The author has aimed at making this work "as clear and complete, but, at the same time, as brief as possible," and we think he has succeeded. Nothing seems to be missed out, a place being found for the rarest and most complex forms of genito-urinary disease. It is a matter for regret that he has not given a separate chapter to urinary fever, as in those days when every rise in temperature is put down to microbic influence, it is refreshing to find a sceptic in our author, so far as this fever is concerned. When speaking of prostatectomy, Mr Morris is persuaded that in future surgeons will seek a route by the perinæum without opening either the urethra or the rectum.

Practical Examination of the Urine. By JAMES TYSON, M.D. Ninth Edition. London: Baillière, Tindall, and Cox: 1896.

A BOOK on the examination of the urine which has gone to a ninth edition must fill a useful rôle. The little volume before us gives the student a fairly complete account of the different tests and methods of volumetric analysis of the urine. No great alterations from the last edition are to be noted. We could wish a better account of the proteids found in the urine in disease. The methods of estimation are given so shortly as to be inaccurate, and there seems to be some confusion in the colours given in the biuret reactions. The statement ascribed to Senator, on page 58, has, we think, been departed from in the last edition of his work. It is a pity that no method is described for estimating the acidity of the urine, a point of some importance. Despite a few faults the book is, on the whole, an accurate and concise account of the urinary examination, useful alike to student and practitioner.

A Handbook of Diseases of the Nose and Pharynx. By JAMES B. BALL, M.D. (Lond.), M.R.C.P., Physician to the Department for Diseases of the Throat and Nose at, and Physician to the West London Hospital. London: Baillière, Tindall, & Cox: 1895.

THE present edition of this work has been thoroughly revised, but it differs from the first edition chiefly in that it now includes the diseases of the pharynx, which formerly had no place in this book. This is a wise and at the same time a natural addition, which renders the book more complete. The author aims at supplying such an account of the diagnosis and treatment of diseases of the nose and pharynx as may be useful to the practitioner and senior student, and this he may be said to have done with considerable success.

The chapter on Diphtheria is good as far as it goes, but it is not now up to date. This, however, is due to the great change which has taken place since the article was written, by the introduction of the much-discussed antitoxin treatment. The book is nicely printed and well got up, but we note on page 18 that "phrygoid" plate and "phrygo-maxillary," evidently intended for "pterygoid" and "pterygo-maxillary," seem to have escaped the author's corrections.

On Extraction: with Notes on the Anatomy and Physiology of the Teeth, for Medical Students. By W. D. WOODBURN, L.D.S., Glasgow. London: Baillière, Tindall, & Cox: 1896.

THIS is a work specially intended by its author for the instruction of medical students. There is need for this. At the ordinary surgical lectures of most of our medical schools, tooth extraction, as

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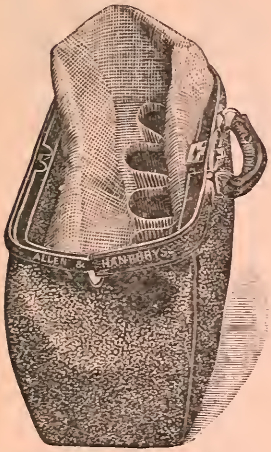

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well as the morbid conditions requiring it, are subjects generally discussed with much brevity—sometimes with considerable haziness, and apt to be dismissed with little ceremony. This is not as it ought to be. The operation is one of daily occurrence, and not without its importance. There are cases where the surgeon's care must supersede the dentist's. Most patients suppose all dentists to be "doctors," and sometimes there is no attempt at disclaiming the title; but the time has not yet come when they, like other specialists, are fully qualified medical men. It therefore becomes apparent that either the surgeon should be better qualified as a dentist or the dentist as a medical man; and every medical practitioner certainly ought to know at least what is required in dental disorders—how it should be done, and whether it has been properly accomplished. There is a large amount of information of the kind thus required contained in the work before us. Many rules and some excellent directions are laid down for the performance of all varieties of extractions—but it seems scarcely sufficiently emphasized that without practical experience no written instructions are sufficient to make an expert or even a competent operator.

The book is profusely illustrated, and will be found, not by medical students alone, but also by general practitioners, admirably calculated to fill what the author alludes to as a gap in dental literature, while it does so in that of medicine and surgery as well.

Anatomy at the Johns Hopkins University.—Prof. F. P. MALL gives an interesting account (*Bulletin of the Johns Hopkins Hospital,* Baltimore, May–June 1896) of the buildings for anatomy and of his method of instruction. It is twenty years since the lamented Prof. Huxley went over to open that splendidly endowed University and Hospital. Anatomy has had a footing in the University for the last three years, and the class now musters some 70 students. Prof. Mall's elaborate description of the arrangement of the rooms, with plans to scale, will be read with special interest by those who have still to construct their anatomical buildings, bearing in mind differences of climate. He is evidently familiar with the arrangements of the new anatomical buildings of the German universities, and, as in them, full provision is made for microscopic as well as naked-eye anatomy. The building, some 90 by 50 feet, is of four storeys besides basement. In the latter, mostly above ground, are the machinery, the "embalming" room, freezing apparatus, storing room, etc. In the first floor is the lecture-room, etc., but temporarily used for chemistry. The second floor is devoted to microscopic anatomy, the largest laboratory with capacity for fifty to sixty workers, and there are various accessory laboratories for all the parts of histological work. The third floor is for dissection, in nine rooms, the largest one holding eight to ten tables, an arrangement the professor prefers to the traditional plan of one large dissecting-room. Some of the partitions are thin, so that they can be removed if desired. All these rooms are lighted by wells from the roof, besides by plentiful side windows. In the attic floor are the macerating room and its accessories. Lifts ply from basement to attic. Museum provision seems rather scanty, but that is a matter of time. Some of the arrangements, those in the basement especially, are adaptations to climate. That we can understand on calling to mind that when the members of the British Association, meeting in Montreal in September 1884, went down to Philadelphia, not so far south as Baltimore, we found a temperature of 103° F. in the shade. The supply of material for dissection under the laws of Maryland is, it appears, scanty, and comes mainly in summer, and the professor is minute in his account of how he prepares and stores the cadavera. He seems not to have seen the account of methods of preservation given in this Journal (October 1890), which we consider perfect and do not require subsequent elaborate devices. His favourite red injection is plaster of Paris coloured with red lead, abandoned here. It is brittle when dried, and, unlike pure vermilion, blackens.

Prof. Mall's ideal in teaching is admirable, and in great contrast to what prevails among his countrymen. "Lectures with demonstrations are certainly valuable—more valuable than the lectures with text-books alone." The latter part of the sentence gives a glimpse into the system of some American schools. But has any body here ever heard of anatomical lectures without demonstration? Prof. Mall is dead against over-lecturing, and strong for direct observation of Nature—*i.e.* for dissection—as the true way to learn anatomy. In that we cordially agree with him, and it falls to be asked, If that is to be said of anatomy, what can be said for lectures on subjects in which little or nothing objective can be presented? Prof. Mall has imbibed the spirit of John Hunter and of von Baer, both of whom he quotes in support of his method. "Often during my life," says von Baer, pathetically, "then, as well as later, have I doubted the wisdom of our university courses."

The Johns Hopkins may be regarded as an ideal, not to say Utopian, university. It shows what is possible with endowments and devoted men. "First and foremost we are careful to admit only those students who have had a good training." That remark appears to be intended as a hint to the medical schools of his country. The good training, as defined, seems to be much on a par with what is required in our medical preliminary and first so-called "first professional" examinations. With all deference to Professor Mall's short experience, we hold that human anatomy, observationally studied, is the best bit of "biology" for a medical student to begin with. Then the Professor goes on, with all the particularity of a drill-sergeant, to regulate his students' work, hours, and weeks. "At present we devote twenty-two continuous weeks to gross anatomy and histology exclusively during the first year, and about the same time to the dissecting-room during the second year. In later years the students may continue to dissect, and if they are especially desirous of studying a number of parts at the same time they are employed as student demonstrators." Notwithstanding all this care in admission to the school and care in superintendence, we read that "some, however, are not bright, and a few others are not inclined to work." So the garden of even Johns Hopkins University is not without its serpent. Still, it is a great thing to have a high ideal. We can cordially recommend a perusal of Prof. Mall's bulky report to teachers, not of anatomy only, as a contribution towards the ideal of the medical school of the future.

Cape of Good Hope Leprosy Commission, 1895. *Final Report of Commissioners, with Minutes of Proceedings and Appendix.* Vol. IV. Presented to both Houses of Parliament by His Excellency the Governor. Cape Town: W. A. Richards & Sons: 1895.

THE final report of the Leprosy Commission at the Cape of Good Hope has now been published, and a perusal of it shows that every care has been taken to arrive at a correct appreciation of the leprosy problem as it affects Cape Colony, and of the best mode of dealing with it. Little more than inference is possible as to the source whence the disease reached the south of Africa, but much more important is the fact, which has been brought out conclusively, that it is steadily on the increase coincident with the free communication within the colony and with adjacent territories. It seems to be prone to establish itself in certain foci or centres, to propagate in them, and from thence to extend. As to how this occurs the Commission have considered the various theories propounded, and express their adhesion to the view that its diffusion must be accounted for by contagion. The patriarchal mode of life of the South African farmers, and the habits of the rural population, are such as to favour the spread of the disease in this way. While reserving an opinion as to whether it is possible to transmit leprosy by vaccination, there does not appear to the members constituting the Commission to be any reasonable ground for belief that it has been so communicated in South Africa. The question of the influence of heredity is an important one, and has been carefully gone into. A valuable contribution to this point has been made by the construction of a series of family trees, from which it would appear that the consecutive implication of individuals in these has been as often an ascending as a descending one, thus all but fatal to the idea that leprosy is hereditary. Corroborative evidence on this topic is afforded by tracing the history of the children of leper parents. Thus of 248 fertile marriages among the lepers on Robben Island, 1294 children were born in all. Of these only fourteen became lepers, and of these leper children only one was born after the parents were themselves, one, the other, or both, affected. The number of cases encountered where it is possible direct heredity could be traced was so small that it cannot be regarded *per se* as at all likely to account for the spread of the disease. The idea of a hereditary predisposition is a still more vague one, and though, perhaps, present in a few instances which came under observation, yet this cannot exert any important influence. Like other observers, the Commissioners have met with instances of arrested leprosy; but examples of cure are very rare indeed, while the condition in which the sufferer is eventually left, after the exhaustion of the complaint, is so pitiable, that cure is hardly the term applicable. A tabulated report of the state of 72 cases with special reference to this will be found instructive. With respect to treatment, the conclusion arrived at is that so far no remedy has been discovered which exerts a curative effect. The Report strongly maintains the value and necessity of segregation, while accepting the impracticability of a too rigorous enforcement of isolation. Various suggestions are made as to modifications, whereby its harshness, under certain circumstances, might be relaxed; but after weighing all that is said, one feels that the question how best to deal with the leper is not yet satisfactorily solved. One matter does not appear to have been deliberated on, viz., that a watch should be kept on the further immigration of lepers from other districts. The Report is one well worthy the careful study of those interested in this momentous subject.

A Text-book of Histology. By ARTHUR CLARKSON. Bristol: John Wright & Co.: 1896.

THIS book is an effort to combine an atlas of histology with a manual of histological methods, and to include with this both systematic descriptions and also the kind of tutorial instruction which is given in a practical class. It must have been a difficult task to unite all these and yet to preserve a due proportion, and the author deserves congratulation on having produced a well-balanced book. He intends it frankly for the student, and has therefore very wisely avoided the discussion of disputed points, and has confined himself to the description of well-known and well-tried methods of preparation.

The book is a good one on the whole, and may be safely recommended to students, but it can hardly be said that it in all respects exactly reflects the present state of our knowledge. This was, perhaps, inevitable to a certain extent from the limitations which the writer imposed upon himself; but it is precisely by adherence to "well-tried methods" of preparation that the progress of histology in this country has been hampered and delayed. The general methods described and advocated are mainly those which would be used in the preparation of specimens for a class; they would give good preparations for that purpose, but would have to be unlearned to a considerable extent if the student intended to do original work. For example, "fixing" and "hardening" are spoken of as though they were merely interchangeable terms, and not processes distinct from one another. Müller's fluid is called "the hardening reagent *par excellence*," which leaves the student to draw the inference that it is also the best fixing agent, which is, of course, absurd. The embedding processes are well described, except that too much prominence is given to the gum method; Dr Clarkson even goes the length of embedding celloidin blocks in gum and cutting them on the freezing microtome. A section on the general theory of staining would have been welcome, while the details of the chapter on stains are not quite what one would have expected. Kleinenberg's hæmatoxylin is recommended, and nothing is said about Ehrlich's hæmatoxylin or Mayer's hæmatein, stains which are certainly better and much more generally used than Kleinenberg's fluid. Only a few sentences are given to the aniline stains, methylene-blue is throughout the book spoken of as methyl-blue, the nature of metallic impregnations is not explained, and they are spoken of as stains.

The special methods given at the end of each chapter are much better than the general methods, the instructions are minute and practical, and there are many useful hints.

The descriptions of the various tissues and organs are carefully written, and in most cases leave little to be desired. We should have thought, however, that more was definitely known about the development of red blood-corpuscles than the author gives, and that some more recent classification of leucocytes than Max Schultze's might have been used. The sections on the cerebrum and cerebellum are rather scanty, as compared with our knowledge of them and their importance. But it is really distressing to find the endothelium of bloodvessels and serous sacs termed a "simple squamous epithelium," and described on the same page as the moulted epidermis of the frog, without a hint of their radical difference in nature and origin. This is a matter of such importance from the pathological point of view that it is impossible to pass it over without adverse comment.

It is pleasant, however, to be able to give unqualified praise to the coloured illustrations. Of course, in a book with 174 of these, one cannot expect all to be uniformly excellent, but the standard is high, and many of them are not only extremely beautiful, but are in addition very clear and demonstrative. We would select for special praise the drawings of the development of bone, of the suprarenal capsule, of the trachea and lungs, of the teeth and their development, the stomach, the skin and its appendages, and those of the different parts of the eye and ear. It is a pity that there are no drawings of the central nervous system prepared by Golgi's method, but this omission can easily be supplied in future editions.

The plan of the book is excellent, the main lines of its execution are good, but we have said enough to show that there are points of detail which require revision.

Directions for Work in the Histological Laboratory, more especially arranged for the Use of Classes in the University of Michigan. By G. CARL HUBER, M.D., Assistant Professor of Histology and Embryology. Second Edition. Michigan: George Wahr: 1895.

THIS is an excellent and well-arranged little book, and should prove of service to students of histology in any school. The selection of preparations, and the plan of the work to be done by the students and demonstrator respectively, are very good, while the descriptions of method are clear and terse.

While some useful and generally employed methods for laboratory work are not considered in the closing chapters upon methods, these will, nevertheless, be found very useful, especially by those beginning original work on histology.

Color Vision and Color Blindness. By J. ELLIS JENNINGS, M.D. Philadelphia: The F. A. Davis Co.: 1896.

THE profession, and indeed the public, hear a good deal at present on the subject of colour blindness, and are sometimes persuaded that the danger to other persons is great in consequence of the prevalence of colour blindness among railway employés, though we never heard of an ophthalmic surgeon who failed to take a summer holiday for fear of a railway accident. The little book in our hands is stated to be a practical manual for railway surgeons, and is written by one who appears to have had considerable experience in the examination of railway servants. The first chapter is historical, the second and third deal with the physiology of the retina and the physics of light, and are for the most part quite superfluous. Then follow others treating of colour blindness and its relation to the railway service, and a detailed description of the methods of testing employed in certain of the American railroad companies. Like all who are conversant with the testing of those suspected of colour blindness, the author bases his method upon that of Holmgren; but like certain others he modifies it so as to reduce the time required for testing to a minimum. There is some danger, however, of making such tests too mechanical, and of thus reducing their efficiency.

Rough Notes on Remedies. By WM. MURRAY, M.D., F.R.C.P. Lond. London: H. K. Lewis: 1896.

THESE *Rough Notes* were originally published in the *Lancet* and *Northumberland and Durham Medical Journal*, and are published in the hope that others may be induced to make a similar record of their experiences.

Southall's Organic Materia Medica. Fifth and Enlarged Edition, by JOHN BARCLAY, B.Sc. Lond., sometime Lecturer on Materia Medica and Pharmacy in Mason College, Birmingham. London: J. & A. Churchill: 1896.

THIS is a book which may prove of use to pharmaceutical and medical students, for whom it is specially designed. It is not one, however, which we can recommend to the general practitioner.

Lectures on Pharmacology, for Practitioners and Students. By Dr C. BINZ, Ord. Professor and Geheimer Medicinal-Rath; Director of the Pharmacological Institute of the University of Bonn. Translated from the Second German Edition by ARTHUR C. LATHAM, M.A., M.B. Oxon, etc. Vol. I. London: The New Sydenham Society: 1895.

THE present volume, after an Introduction, treats of anæsthetics—morphine and allied drugs, rent hypnotics, coniine, curarre, aconitine, nitrites, iodine, atropine, caffeine and digitalis, secele, Calabar bean, pilocarpine, nicotine, strychnine, alcohol, the essential oils, etc.

This volume is worthy of its distinguished author, and to those unacquainted with the German this translation will be much prized. It is a book deserving a place in the library of all those who take an interest in pharmacology.

The Chemist's Compendium: For Pharmacists, Chemists, and Students. Compiled by C. J. S. THOMPSON. London: Whittaker & Co.: 1896.

THIS is in many respects a handy book for those engaged in dispensing, but for the preparation of the officinal substances the chemist would be safer to use the Pharmacopœia. The author in any subsequent edition will do well to revise his "Natural orders," for the names in several cases are antiquated, and few botanists would agree with his classification. The author would do well to consult Bentham & Hooker's *Genera Plantarum.* The habitats of the plants are not well given in some cases. Surely Triticum vulgare and Secale cereale are not *indigenous* in this country.

It is, notwithstanding many defects, a book which will be useful to many.

Formulaire des Médicaments Nouveaux pour 1896. Par H. BOCQUILLON-LIMOUSIN. Avec une introduction par HENRI HUCHARD. Paris: J. B. Baillière et Fils: 1896.

THIS work gives an excellent epitome of most of the new medicines.

Our Baby: For Mothers and Nurses. By Mrs LANGTON HEWER, Diplomée Obstetrical Society, London; late Hospital Ward Sister; Author of "Antiseptics: a Handbook for Nurses." Fourth Edition, Revised. Bristol: John Wright & Co.: 1896.

THIS little book has now reached its fourth edition, and well it merits this distinction. The author speaks with the authority of thorough knowledge and wide experience of her subject. There is hardly a phase of a baby's life, or an accident in a baby's career, which is not spoken of in these pages, and for which the best possible advice is not given to mothers and nurses. The only fault is that perhaps a little too much information is given about accidents and diseases which young mothers and nurses should not try to treat without the doctor's aid. The author says truly in one place,—"To know when to dress a burn and when to leave it alone requires experience;" and this sentence applies to many other conditions for the treatment of which directions are given here. But, apart from this, the book is an excellent one. The chapters on Baby's Food and Baby's Clothes are as good as possible; and that on Baby's Nurse, which includes baby's training, could not be improved upon. Not only for young mothers and nurses making their first essay, but, better still, for those women who imagine they know all about the subject, but in reality know little, nothing better than this "rational and scientific account" of how to bring up a baby could have been written. In the author's opinion, every girl before she leaves school should have an examination on the subject, "How to bring up Baby." When that desirable time comes, we shall have an excellent text-book ready to our hands.

Official Year-Book of the Scientific and Learned Societies of Great Britain and Ireland. Thirteenth Annual Issue.

THIS work contains a list of scientific and learned societies, giving in most instances a list of officials, and in some a list of papers read. It will be found convenient for reference. The value of the book would be greatly increased were there added an index of authors, and of subjects included in the list of papers quoted in the text.

The faith of the Edinburgh reader in the accuracy of the book is somewhat shaken by seeing the secretary of the Medico-Chirurgical Society announced as "J. G. Burn, 3 Oliver Street," no such name or address existing in the *Edinburgh Directory.*

Burdett's Hospitals and Charities, 1896, *being the Year-book of Philanthropy.* London: The Scientific Press, Limited.

THE *Year-book of Philanthropy for* 1896, a most elaborate and complete volume, contains, besides the usual information on home hospitals, tables showing the actual daily cost per patient of the principal general hospitals of India, the Colonies, the United States, and Canada. An interesting chapter is on the Misuse of Hospitals, the writer being in favour of the abolition of honorary medical service. Chapter XII., an examination into the actual contributions of the working and other classes to hospitals and medical charities, is of special importance at the present time, and shows the fallacy of the statement that the well-to-do classes contribute less than their share to the support of the medical charities.

The usual complete list of hospitals, at home and in the colonies, with their staff and expenditure, is given as well as the principal medical schools.

Modern Optical Instruments. By HENRY ORFORD. London and New York: Whittaker & Co.: 1896.

WE must confess to a little difficulty in knowing how to deal with *Modern Optical Instruments*, since we have failed to discover exactly to what class of readers it is addressed,—whether doctors, instrument makers, or the general public. The details given of the mode of construction of certain of the instruments suggest a technical motive, but they are not sufficient to guide a mechanician, while the general public hardly requires to be precisely informed anent the various makes of ophthalmoscope, and we hope every practitioner of medicine possesses somewhat more knowledge of the eye as an optical instrument than to be enlightened by the remarks of Mr Orford. Indeed, the chapter on this subject (Chap. I.) is scarcely up to the standard of a popular treatise on physiology, and the sectional diagram of the eye on page 2 is nothing short of a libel on Nature. Each of the three classes of individual may pick up some useful information from Mr Orford's book, however.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXV.—MEETING X.

Wednesday, June 3, 1896.—Dr ARGYLL ROBERTSON, *President, in the Chair.*

I. EXHIBITION OF PATIENT.

Mr C. W. Cathcart showed a patient who, he said, illustrated a point which was unknown to him until he had seen one or two examples of it this winter. In certain cases of tertiary syphilis the sore presented characters which one was always accustomed to consider tubercular—viz., marked undermining of edges of sore and irregularity of the scar. Of the other two he had seen, one was on the arm and the other on the neck. If one had not really been on the look-out for it in the ward, one might have taken it for tuberculosis. They healed up without any trouble under antisyphilitic remedies. The patient had only been in the ward two days, and there was a great difference in the sore. The history was that three years ago he had syphilis; and now he had got, besides this curious undermining of the skin, a gumma forming on the clavicle, and another on the scalp.

II. Demonstration of Instruments.

1. *Dr Logan Turner* explained and demonstrated Dr Kirstein's method of LARYNGEAL AUTOSCOPY. This paper appears at page 18 of this Journal.

2. *Dr Argyll Robertson*, the President, showed INDIAN INSTRUMENTS FOR COUCHING CATARACT. He said he was indebted to the kindness of his friend Surgeon-Major Jennings for the opportunity of exhibiting to them three specimens of the instrument employed by native oculists in India for the operation of couching cataracts. Dr Jennings had informed him that he had considerable difficulty in getting specimens of the instrument, as the quacks there were unwilling to give them up. A man, however, lately gave him some specimens, of which he enclosed three. They were of copper, and often very dirty. The quacks generally made an incision with a bleeding lancet and shoved the lens out of place with one of the enclosed weapons, withdrawing it when they had reached the neck or shoulder. The portion of the instrument introduced into the interior of the eye, and by means of which the lens was depressed, was shaped very much like the blade of a bayonet.

III. Original Communications.

1. *Dr W. G. Aitchison Robertson* read his paper on THE ROLE OF THE CARBOHYDRATES IN DIETETICS, WITH AN INQUIRY INTO THE CONSTITUTION OF INFANTS' FOODS, which will appear in a future number of this Journal.

The President said they were much obliged to Dr Robertson for this important contribution on infantile dietetics, and they should be glad to hear remarks on it from those well qualified to judge of it from practical experience. He thought they might call on Dr Carmichael to express his opinion.

Dr James Carmichael said he must bow to the ruling of the chair, but he was under the disadvantage of not having heard all Dr Robertson's paper, so that he could not criticise it. Evidently it was such a long dissertation, and went in such detail into this matter, that one would require to read it in order to discuss it. What the President, perhaps, desired was that he should express in general terms his opinion of these infant foods. He did not quite gather from Dr Robertson's paper whether he recommended them as substitutes for mother's milk during the lactation period, which the makers advertised them to be. This, of course, he could not suppose for one moment that Dr Aitchison Robertson would do, nor would any medical man who had given attention to the subject, and who knew and understood the physiology of infantile dietetics. He thought that they must altogether discard these foods as substitutes for mother's milk during the lactation period,—*i.e.*, during the first period of life, because from a physiological and chemical point of view they were totally unsuited. They did not contain all the elements of nutrition necessary for the child. Among the foods which Dr Robertson had alluded to there was only one that contained all the elements of nutrition,—viz., malted milk. The others were deficient in one of the most nourishing ingredients,—viz., fat. Now, the most important of these elements in milk, the typical food, were certainly the proteids and the fats in addition to the carbohydrates. In regard to these foods generally, many of them were cooked, or at all events altered, during preparation, which deprived them of the fresh quality of a natural food. Being more or less cooked, they seemed to act on the child very much in the same way as cooked or salted food did on the adult; they did not possess that which most fresh foods, especially vegetable foods, contained, the antiscorbutic property. Now they were beginning to find out that in early life they must pay great attention to this in the feeding of children. If they fed them on such foods, they were apt to develop not only rickets, but also scorbutic symptoms, which could be prevented by suitable change of diet. He had referred to these foods as professed substitutes during the lactation period for the mother's milk or fresh cow's milk, and he had only done so wholly to condemn them. But they had not only to feed the child during this critical period artificially, but afterwards, when dentition was fairly advanced, they had to feed it like a grown-up person, on a mixed and varied diet, because they must always bear in mind that children were little men and women, and had their peculiarities of digestion in regard to food, and they must study each child and vary the food according to the nature of the case. When the child was weaned there was no doubt that these foods, if taken along with other foods, were suitable and useful. Any of these farinaceous foods combined with fresh milk formed useful nutriment for a child just after weaning, given in the form of thick gruel or porridge. But they were not so good as the natural foods themselves. He much preferred the natural farinacea,—wheat, barley, or oats. Bread was the staff of life, so was wheat flour. Barley flour was equally nutritious, oat flour even more so. So cooked in the ordinary way, they were a long way more useful than any of the artificial foods. As to the diastatic property of the prepared foods, he thought it was no advantage, perhaps the reverse, to healthy children. He would confine the use of partially predigested foods to cases of disease where digestion was very much weakened, as in chronic gastro-intestinal catarrh. But he for one—and he knew it was the opinion of many of his professional brethren with whom he had spoken on the subject—maintained that they were not to be compared with the ordinary natural foods as nutriments. A child as it grew older could convert starch into dextrin in the ordinary way, and it was an insult to its natural digestive powers to give it predigested food. He must apologise for the discursive nature of his remarks. These were some of the principal points he had thought it well to refer to.

Dr Black said he should like to throw out the suggestion whether the carbohydrates in the form of sugar would not have some antiseptic power. Would sugar not have the same effect internally as externally? He would also ask whether Dr Robertson would not justify a diet of porridge. He was unable to say whether he (Dr Robertson) regarded it as founded on scientific principles. Its justification was from its use and results. The scientific exposition of it might be rather an interesting curiosity.

Dr Lockhart Gillespie said he had listened to this paper with much interest, because lately he had been looking into part of this subject himself. He did not know that he had heard anything very new, but the facts had all been put quite plainly before them. A French physician, Dr Brouget, at the beginning of this century expressed the opinion that mother's milk was the worst thing children could take, because it bred immorality and hereditary disease. Three centuries before that a chemist, Van Helmont, held that mother's milk was exceedingly bad, because it led to inborn propensities being transmitted. He recommended bread boiled in beer or honey as infants' food. He (Dr Gillespie) did not know whether it was worth while analysing that. One or two points he had noted. Dr Robertson said that gastric digestion was the same in children as in adults. He (Dr Gillespie) had an idea that in infants the ferment rennet was very much stronger. There was a much larger quantity of *lab*, as the Germans called it, or rennet. Dr Robertson had said nothing about want of fat in condensed milks. He might refer to the *British Medical Journal* of last summer or the summer before, where an account of a large number of analyses of condensed milks was given. Only one or two were found to have been made from ordinary milk. Most were made of skim milk evaporated down and with sugar added, generally cane sugar. A third set were condensed milk with some fat, lard, or suet added in small quantity. One of the causes of illness in children was want of fat. They might give children any amount of phosphates and iron. If they had not enough fats and proteids they would suffer. One reason for giving these foods was, according to Dr Robertson, that they rendered the curd more digestible. Arthur and Page found that all that was required was to add a small quantity of a lime salt to the cow's milk. Two special foods he would like to mention —Horlick's and Muffler's. The latter was, he thought, the best. It was made by the Aylesbury Dairy Company, and consisted of desiccated milk with powdered wheaten flour, powdered white of egg, and a little lactose. Another thing that Dr Robertson might have mentioned was humanized milk of the Aylesbury Dairy Company. No cane sugar was added. It was all lactose, which, of course, did not cause anything like the same irritation of the intestinal canal. With regard to oat flour Dr Carmichael had taken the words out of his mouth. A little of Scott's oat flour added to the milk gave better results than anything else. The child fed on mother's milk did not take much at a time, though able to digest a good deal. When fed artificially it was often made to take a fixed and too large a quantity. In all artificial feeding there should be a text hung up on the wall of the nursery with the words "little and often."

Dr Allan Jamieson said that at one time he devoted a considerable amount of attention to infants' food, and he could support a great deal of what was said by Dr Gillespie and Dr Carmichael. One or two things had struck him at that time, and struck him still. One was that mothers were apt to give the milk too dilute. They were afraid, too, of adding much lime-water. They seemed to think it very dangerous and potent, and instead of putting in a quarter or a sixth of lime-water, they added a teaspoonful to an occasional bottle, and used water instead. Consequently the milk was not prevented from forming a hard coagulum in the stomach. Another thing was that they gave ordinary food often too hot, and that, he thought, was the reason for the food being so frequently rejected; not that he would recommend that bottles which had a thermometer attached should be employed, because in one or two cases disastrous accidents had arisen from the thermometer getting broken and some of the mercury being swallowed. As to the advantages of some of the well-known substitutes, two things that he knew of formed the best addition to the food when the child had reached the teething period. One of these was known as "Chapman's Entire Wheaten Flour." They must have the entire wheaten flour. It would not do to have the finest material ground down and prepared. They must have the whole ground (only the husk being rejected) in order to get the salts. The advantage of oat flour was that it contained fat. It was one of the richest of the cereals in fat. It was the presence of fat which had made it such a nutritious food for the Scottish nation, now far too much replaced by tea, also for children as a substitute for the natural food.

Dr Burn Murdoch said he had listened with interest to this paper, which was a *résumé* of a subject which, he thought, they were the better of being told something of now and then, also to several of the speakers, notably to the practical remarks of Dr Carmichael and Dr Gillespie. He could not help feeling that there was a great deal of nonsense talked about the difficulty of feeding infants. He had not found that difficulty, if the milk was properly prepared. He had rarely in private practice to fall back on artificial foods. Analyses of these foods were enough to show thinking men that they resembled neither human milk nor good cow's milk. One point he wished to emphasize more strongly than Dr Gillespie had done, viz., that the amount of food required by a young infant was exceedingly small. It had been fully worked up, and the statistics were available for those who chose to read them in the books,—14, 15, or 20 ozs. in twenty-four hours during the first month of life, and not more than 30 or 40 ozs. of fluid in the twenty-four hours, up to the end of the first year,—showing the value of mother's milk. Those who were in family practice had only to contrast with that, the vast amount of fluid which a thoughtless mother would pour through an unfortunate infant. Not very long since he found a lady, who was daily giving her child over 80 ozs. of fluid in twenty-four hours. He only succeeded in bringing home the folly of such excessive feeding after showing her four quart bottles full of water. With regard to grains, he could entirely corroborate what Dr Carmichael and Dr Gillespie had said as to the great importance of choosing the proper grains for thickening both milk foods and soups. He always preferred the three home grains.

Dr James Ritchie said he thanked Dr Robertson for his paper, because mainly it seemed to be an argument for the use of natural foods, first of all of mother's milk, next of cow's milk, in preference to any of these artificially prepared foods. He (Dr Ritchie) agreed entirely with what Dr Carmichael had said, that if they could use any of the natural grains, such as wheat, oats, barley, they were preferable. In a town he believed in sterilized milk. He agreed with Dr Carmichael that cooked food did not yield so much nourishment. It was quite demonstrated that boiled milk was not so readily absorbed as uncooked milk. But in a town where the milk was produced under somewhat unfavourable conditions it was wise to give children sterilized humanized milk. If that could not be done, then let them mix with water, cream, and sugar, and put a certain amount of flour in a flour ball, or instruct parents to get some flour cooked in the oven by their baker. The object was to have the flour changed, and the object of giving it, he explained to parents, was not to give nutriment, but to make a soft open curd by its mechanical presence. He dared say some of them would remember that a number of years ago he had the honour of reading a paper before the Obstetrical Society, in which he described a good many experiments he had made in preparing foods for children by digesting them out of the stomach. He had always had the idea before these experiments that lime was most useful, and gave lime-water in large quantities where there was no constipation, but since then he almost never gave it except in diarrhœa. When he digested the food out of the stomach and added lime-water, he got a beautiful curd resembling that of mother's milk. But the secretion of the stomach was acid; it neutralized the lime, and they got almost as hard a curd, in fact quite as hard a curd as they got with plain water. The more the milk was diluted with water the softer was the curd. (Dr Gillespie—" I referred to salts of lime, not to lime itself.") Dr Ritchie apologised for his mistake. Continuing, he said that Dr Robertson should send his paper to the makers of these foods, so that they might be able to modify the instructions they sent out, which had the effect of spoiling the foods in their preparation. Sometimes malt food did good; in other cases it was absolutely useless.

Dr Carmichael said he would strongly recommend Dr Robertson not to follow Dr Ritchie's advice, because he would not get thanks, perhaps the reverse. When he (Dr Carmichael) was writing a little book for Mr Pentland the publisher, he on two occasions mentioned the names of these foods, and Mr Pentland insisted that he should take it out. Otherwise he might get himself into serious trouble.

Dr Aitchison Robertson, in reply, said he thanked them for the way in which they had received his paper. Some appeared to have misunderstood his object, which was not to formulate a proper dietary for children, but to give a *résumé* of the constitution of infants' foods as they occurred in the market. He did not wish to lay down any hard and fast rules. The mother's milk was in general the best. But certainly it was the worst food if the mother was unhealthy herself. In that he agreed with the Frenchman mentioned by Dr Gillespie. He entirely concurred with the other speakers, that most of these foods were unsuitable for children. At the same time, these foods were very largely employed, and he had tried to show in what circumstances they might be safely or even advantageously used. He emphasized the use of sterilized cow's milk as the next best to healthy mother's milk. Dr Black had asked him whether sugar might act as a preservative. He (Dr Robertson) thought that in the dilute form it would rather decompose. Porridge made of oat flour was no doubt an excellent food for children of a reasonable age when able to digest starch.

2. *Dr Byrom Bramwell* read a paper on A REMARKABLE CASE OF PRIMARY SARCOMA OF THE LIVER SIMULATING HEPATIC ABSCESS, with a PATHOLOGICAL REPORT by Dr Leith.

Dr Affleck said that this paper recalled very vividly to his mind a case that occurred in the Royal Infirmary a few years ago, which might interest them. In the first place he must refer to the difficulty of diagnosis in these cases. The more one saw the less one was likely to dogmatise. The case occurred in this way: An Italian woman, a street musician, was treated in the Fever Hospital for typhoid fever. She had all the symptoms of typhoid, and was in the hospital for three months. A swelling was observed in the right side. She was admitted to the Infirmary, and he (Dr Affleck) found a large fluctuating tumour under the right ribs, and to all appearance in the liver. On a puncture being made, chocolate-coloured matter came out. Mr Duncan saw the case with him. The woman was very ill, and had a high temperature. She had very little acquaintance with English, so that they could not obtain a history. Surgical interference was decided on. He thought it might be a suppurating hydatid cyst. Mr Duncan cut into a huge cavity in the liver. A large quantity of grumous matter came away, and Mr Duncan introduced a drainage-tube. The woman lived only a short time, and after death there was found an enormous abscess cavity in the liver, communicating with a gastric ulcer, which opened by a sinus into the cavity, and in and out of which the contents of the stomach passed. Such things, they knew, happened over and over again, and that was one of the points to remember in connexion with these fluid tumours of the liver.

3. *Dr James Ritchie* read his NOTES ON TWO CASES OF OPIUM POISONING, which appeared at page 13 of this Journal.

Dr F. D. Boyd said that he had much pleasure in rising to thank Dr Ritchie for his very interesting paper. There was only one point in reference to it that he would emphasize, viz., the purely local and chemical action of the permanganate in the stomach. An interesting case occurred the other day where a very young enthusiastic medical man gave hypodermics of permanganate, with the natural effect of producing local suppuration. It would be well to insist on the point, that permanganate was to be given only by the mouth, and not hypodermically.

Dr H. M. Church said that Dr Ritchie had done well in bringing before them this very simple and evidently very effectual way of treating opium poisoning with permanganate of potash. He should like to point out that it was not uncommon to give nursing mothers a little opium for after-pains. Dr Ritchie had just asked him if he had had any bad effects on the infant. He had not had any such effects in giving opium to mothers, although the child was put to the breast very shortly afterwards. He thought it was an interesting point in connexion with this discussion. It was still to be explained whether the oxidation of it took place before it reached the child or not. At all events, it was the case that it did not seem to affect the child.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

ENDOVENOUS INJECTIONS OF ARTIFICIAL SERUM IN ACUTE PNEUMONIA.—Bassi (*Gazz. degli Osped.*, June 6, 1896) reports six cases of severe acute pneumonia treated after the method of Galvagin, that is, by endovenous injections of a solution of chloride and bicarbonate of sodium. In each case the pneumonia was double, and of a grave type. Of the six cases, five recovered and one died; and at the necropsy, double broncho-pneumonia, right lobar pneumonia, and acute nephritis on the top of an old chronic nephritis, also some mitral stenosis, were found. With regard to the other cases, the author believes the treatment was of material service. The best time to give the injections is about a day before the expected crisis, or when the pulse becomes intermittent, or, in fact, upon any grave alteration in the condition of the patient. A small preliminary bleeding is useful. Whether the treatment acts by preventing coagulation of the blood, by oxygenating (through the incision) the venous walls and reflexly acting on the circulation, or in some less known manner, the author is unable to say, but from his clinical experience in its use, he feels justified in strongly recommending it for further trial. In a footnote he refers to two other cases in which it was tried by him with success. —*British Medical Journal*, July 18, 1896.

SUBLIMATE INJECTIONS IN PERNICIOUS ANÆMIA.—Patera (*Rif. Med.*, May 23, 1896) reports the case of a lady, aged 33, seen by him in January 1895, with a history of severe anæmia, fever, vomiting, insomnia, and extreme debility of a year's duration, and attributed to severe uterine hæmorrhage in the early part of 1894. The usual remedies were tried, but with very little success. The red blood-corpuscles were very much diminished in number. There was no albuminuria and no hæmaturia. Some blood was vomited on one or two occasions. Temporary improvement followed the author's treatment, but when next seen in December 1895, the patient reported herself no better. Daily injections of 5 mg. of sublimate were then practised for the space of two months with excellent results. The anæmia disappeared and the patient radically improved, put on flesh, lost her palpitation, giddiness, and sense of fatigue, and felt well in every way. The author refers to another case of severe anæmia successfully treated in the same manner. It raises the question whether pernicious anæmia may not be due to some hitherto undiscovered germ which is killed by the germicidal action of the sublimate.—*British Medical Journal*, July 18, 1896.

EUCAINE.—Berger (*Revue de Thérap.*, June 15, 1896) has employed this drug clinically, and thinks it a useful substitute for cocaine. It is but little soluble in water; but the hydrochlorate can be dissolved in water to the extent of 6 per cent. It is not so toxic as cocaine, while its anæsthetic effect is fully equal to that of the latter; but whereas cocaine produces local anæmia, eucaine produces local hyperæmia. Applied to the cornea it does not tend to produce desquamation of the superficial epithelium, which cocaine does, and it has the further advantage of not affecting the pupil or accommodation. A one per cent. solution applied to the eye causes no pain; a two per cent. solution causes some pricking. Anæsthesia occurs in a few minutes; the hyperæmia of the conjunctiva lasts for half an hour after the anæsthesia passes off. The solutions of eucaine are very stable (Vinci), and so can be easily sterilized.—*British Medical Journal*, July 18, 1896.

THE USE OF GUAIACOL SUBCUTANEOUSLY IN THE TREATMENT OF PULMONARY CONSUMPTION.—In a leading article having a title similar to this, in the April issue of the *Therapeutic Gazette*, was mentioned a paper by Coghill of England, who strongly recommended the hypodermic injection of guaiacol in tuberculosis. We now find in the *Journal de Médecine de Paris* of February 22, 1896, an article by Dr Tanneur, in which he also recommends this treatment, and states that in his opinion the guaiacol should be given hypodermically in sterilized and acidified olive oil. He believes the best results are obtained by giving the injections once or twice a day, in the morning or at night, or both. In regard to dosage, something depends upon the febrile movement. If there is no fever, he begins by giving one grain of guaiacol daily, and later, as much as two or three grains during each day. In still other instances, as much as from four to eight grains may be employed if the patient stands the remedy well and seems to be benefiting by its use. In more advanced cases of tuberculosis, where there is an active febrile movement and the disease is progressing rapidly, smaller doses may be employed, but instead of once a day, they are to be given twice or three times a day, and after a number of days have elapsed, a steady progression in the quantity administered is to be resorted to. The most important symptom to guide us in the administration of the drug is expectoration. As a general rule this rapidly diminishes and is modified in character by this treatment, changing from yellow nummular masses into a light-coloured, non-purulent sputum. Of course, if small doses produce this good result, the dose is not to be increased. The cough is also somewhat of an indication as to the amount of the drug to be given, as it usually diminishes coincidently with the change in the character of the sputum. As the drug exercises its favourable influence, dyspnœa becomes less marked and fever gradually disappears. If the fever is persistent, the larger doses, given once, twice, or thrice a day, must be resorted to.—*The Therapeutic Gazette*, June 15, 1896.

HYPODERMIC INJECTIONS OF FOWLER'S SOLUTION IN ANÆMIA.—After pointing out that in grave anæmias the difficulties of treatment are very great, the *Journal des Praticiens* of January 18, 1896, recalls the fact that Hayem in his book upon the blood, in 1889, recommended the hypodermic injection of arsenical preparations in those cases where irritability of the stomach prevented its administration by the mouth. The best means of administering Fowler's solution is in cherry-laurel water in the dose of ten drops, as much as twenty drops being sometimes given in a day. In a recent summary of this subject, Kering reports thirty-five cases of severe anæmia due to various causes, such as pernicious anæmia, anæmia after typhoid fever, round ulcer, cancer, tuberculosis, and that due to tape-worm, in all of which he employed a solution composed of two parts water and one part Fowler's solution. Of this mixture, an ordinary hypodermic syringeful was given daily. In all instances Kering found marked improvement in the anæmia. —*The Therapeutic Gazette*, June 15, 1896.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P. Ed., Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

GUINEA-WORM TREATED BY CORROSIVE SUBLIMATE SOLUTION.—Manson observes that the practice of attempting to wind out a protruding guinea-worm by attaching it to a piece of wood is a time-honoured one, apparently possessing great attractions for the amateur and even professional surgeon. But experience, as well as reason, teach us that it is not only a very unscientific but also a very painful as well as a most dangerous procedure. If the parasite appears to be twisted among the tissues, and if still emitting her young, she resists, and may rupture. The consequences are often serious, for myriads of young escape, inflammation of a violent kind occurs, while micro-organisms present in the worm-track set up suppuration, followed by sloughing, with probable contraction of the implicated part. Emily, a French naval surgeon, has shown that by injecting a solution of 1–1000 into the little, convoluted, cord-like swelling produced by the guinea-worm when she begins to approach the surface prior to piercing it, the worm is killed, and gives no further trouble, being absorbed subsequently like a piece of aseptic catgut. He uses a Pravas syringeful of the solution, injecting it through several punctures. Should the case have gone further, and the head of the worm be protruding, he pierces the worm itself with the needle and injects the solution into her body;

next day he finds that she can be readily withdrawn. There is no pain, no inflammation, and the duration of treatment is reduced to three or four days, in place of many weeks. A case is cited to show that a dead aseptic guinea-worm does not act as an irritant to the tissues.—*British Journal of Dermatology*, February 1896.

COLCHICUM IN FURUNCULOSIS.—Brocq states that in gouty subjects suffering from boils, but who are neither diabetic nor albuminuric, the extract of colchicum, in doses of half a grain daily, gives good, and sometimes surprising results. He cites the case of a very gouty person, aged 40, suffering from quite intractable furunculosis, of several months' standing, in whom the disease was thus absolutely arrested in two days, but on cessation of the drug it reappeared, only to disappear again as rapidly on resumption of the drug. This happened repeatedly until the patient, being ultimately so convinced of the value of the medicament, continued to take it until completely cured. The local treatment comprised the use of camphorated alcohol and Vidal's red plasters.—Abstract in *British Journal of Dermatology*, January 1896.

FOOTBALL IMPETIGO.—Under this name Armstrong describes a form of impetigo contagiosa prevalent among football players who practise the Rugby game. After a short period of itching, a slight erythematous spot appears on the skin, on which a vesicle, varying in size from a split pea to a small horse-bean, quickly forms. The vesicle at first contains clear straw-coloured fluid, which becomes opaque as it reaches maturity. It then bursts and dries with a brown crust, generally flat, but more rarely with the heaped-up crusts of ordinary impetigo. The disease spreads by the occurrence of fresh crops of vesicles, the result of "auto-infection." In some cases a vesicular or pustular margin, surrounded by a red areola, forms round the scab. As the vesicle extends, the scab sometimes falls off, leaving a comparatively healthy, smooth surface in the centre. The most common site is on the face over the malar bones and lower jaw, but they may occur on or behind the ears, and, as a secondary infection, on the fingers. It seldom affects the scalp. The lymphatic glands tend to enlarge, and there may be suppurative dermatitis or boils lasting some time. Bacteriological examination by Galloway showed the presence of the staphylococcus albus or aureus or both. Besides direct contact, another source of infection was traced at Haileybury and Wellington to putting on jerseys which had remained unwashed from the previous term. The roughness of the texture of the jerseys may, by causing abrasions, favour infection. The curative treatment is simple, since any germicide ointment, if applied to the surface after thorough removal of the crusts, will cure. Armstrong generally availed himself of sulphur ointment, or on a mixture of boroglyceride and sulphur.—*Paper read before the Medical Officers of Schools' Association.* Churchill, London, 1896.

THE LIMITATIONS OF ELECTROLYSIS IN ITS APPLICATION TO AFFECTIONS OF THE SKIN.—Charles W. Allen observes that occasionally application is made for the removal of a fine, silky, and not at all disfiguring growth of hair on the lip. He has advised against the needle in such cases, as well as in the case of single moles so situated that they are rather to be regarded as beauty marks than otherwise. The first rule of surgery—to do no harm—must here apply, and the production of a cicatrix more distasteful than the original trouble must be guarded against. Once having decided that the case is suitable for operation, the patient must be made to understand that many sittings will be required until all hairs are permanently removed. It is well, too, that the fee for each *séance*, or for the work as a whole, should be agreed on beforehand. He informs his patients beforehand that a certain proportion of hairs removed will grow again, and that the operation is to be repeated until the gradually diminishing proportion of "reproduction hairs" is *nil*. He believes that to a limited extent the irritation of the surrounding tissues caused by the current and succeeding erythema favour increased activity in the growth of adjoining hairs. Hence it is inadvisable to operate on the upper lip near the corner of the mouth, unless most of the fine hairs are destroyed at the same time; but also because the reactionary irritation is apt to be pronounced in this region, and may result in small, white, perhaps pitted scars of a tell-tale nature. This stimulation does not cause new hairs to be produced, merely encourages the lanugo ones to greater activity. The intensity of the current employed must vary with the patient's susceptibilities, the atmospheric conditions, and the practical results attained, the desideratum being to get along with the least current strength that will do the work. As regards nævi, the small nævus araneus, telangiectases which occur later in life, and nævi of limited extent, are removed with equal ease. Quite superficial port-wine marks may with time and persistency on the part of patient and physician result in a very satisfactory condition. In this latter he has found that very superficial prickings with a sharp needle, while painful, gave better results than deeper insertion of the point and longer passage of the current. Where a few dark freckles of good size are scattered over the face they can be removed by the needle in one of two ways,—either by pricking lightly over the surface with a weak current, or with half a milliampere undermining the epidermis with a fine needle or a very narrow-bladed flat one, until the surface above the needle is distinctly blanched. The epidermis exfoliates within a few days, and with it the pigment contained in the rete mucosum.—*New York Medical Record*, Jan. 25, 1896.

PRURITUS VULVÆ.—Giles classifies the causes of this obstinate complaint as follows:—1. Pruritus due to irritating discharges. *a.* Glycosuria. The margins of the urethra and vestibule are congested and angry-looking. The examination of the urine and consideration of the symptoms settle the diagnosis. Besides the necessary constitutional treatment, irritation is lessened by sedative applications to the vulva and urethra. *b.* Cystitis. A minor form, usually yielding to washing out the bladder. *c.* Leucorrhœa. It is doubtful if this cause can act alone. Nevertheless the cure of the vaginitis or endometritis, as the case may be, is generally followed by cure of the pruritus. 2. Pruritus due to vulval conditions. *a.* Vulval congestion. This may arise from varicose veins caused by pressure in the pelvis, or from functional causes. The latter may be associated with the menstrual periods, and the pruritus will then be periodic, or it may be due to masturbation. The hypertrophied labia minora will give a clue. *b.* Vulvitis pruriginosa. The skin of the affected parts is first red and hot; later it becomes pale, thickened, and cracked, appearing as if soddened. It is always worse at night. In obstinate cases the parts should be painted, under ether, with a 1 in 5 solution of phenol in glycerine, and the resulting sore treated with non-irritating dressings. *c.* Eczema vulvæ. Is similar to eczematous conditions elsewhere. *d.* Kraurosis vulvæ. This is a condition of atrophy. The labia becomes small, the skin smooth and glazed, and the pubic hair scanty. Longyear recommends dissecting away the thickened fibrous bands underlying the affected parts. *e.* Pediculus pubis. 3. Pruritus due to reflex irritation. *a.* From the rectum. Thread worms or an unhealthy state of the mucous membrane. *b.* From the bladder. In cases of vesical irritability with frequent micturition. Hydrostatic dilatation of the bladder under ether cured a case. *c.* From the uterus. Pregnancy is sometimes associated with pruritus, even without marked leucorrhœa.—*Clinical Sketches*, Feb. 1896.

Part Fifth.

MEDICAL NEWS.

ARMY MEDICAL STAFF.—List of successful Candidates for Commissions in the Medical Staff of Her Majesty's Army at the recent Examination in London.

Order of Merit.	Names.	Number of Marks.	Relative Marks under old Scale.
1.	Stammers, G. E. F.,	3018	3159
2.	Wanhill, C. F.,	2643	2681
3.	Hudleston, W. E.,	2345	2606
4.	Corkery, M. P.,	2254	2402
5.	Addams-Williams, L.,	2215	2346
6.	Rattray, M. M.,	2209	2195
7.	Gaine, F. J.	2102	2336
8.	Power, J. H.,	1979	2199
9.	Phillips, R. E.,	1959	2177
10.	Bliss, E. W.,	1934	2138
11.	Marriott, W. E. P. V.,	1926	2139
12.	Clarke, T. H. M.,	1907	2076
13.	Berne, J. G.,	1804	2005

British Medical Service.—List of Surgeons on Probation of the Medical Staff of the British Army who were successful at both the London and Netley Examinations.

July 31*st*, 1896.

No.	Name.	Combined Marks.	No.	Name.	Combined Marks.
1.	Birrell, E. T. F.,	5255	6.	MacDougall, A. J.,	4072
*2.	Cochrane, E. W. W.,	4600	7.	Clements, R. W.,	3994
3.	Morris, A. H.,	4372	8.	Swabey, M.,	3873
4.	Riddick, G. B.,	4152	9.	Hewetson, H.,	3793
5.	Archer, S. A.,	4114			

* Gained the Parke's Memorial Medal.

Indian Medical Service.—List of Surgeons on Probation of the Indian Medical Service who were successful at both the London and Netley Examinations.

July 31*st*, 1896.

No.	Name.	Combined Marks.	No.	Name.	Combined Marks.
*1.	Walton, H.,	5907	10.	Brown, H. R.,	4439
†2.	Ainsworth, H.,	5606	11.	Richards, W. G.,	4435
‡3.	Pinch, A. E. H.,	5010	12.	James, S. P.,	4357
4.	Dickson, H. A. D.,	4980	13.	Fleming, A. N.,	4313
5.	Stevenson, J. S.,	4940	14.	Dee, P.,	4307
6.	Smith, F. A.,	4915	15.	Mell, F. O. N.,	4186
7.	Cornwall, J. W.,	4791	16.	Brown, F. D.,	4153
8.	Miller, A.,	4561	17.	Dick, M.,	4151
9.	Hammond, F. A. L.,	4472			

* Gained the Martin Memorial Medal and the first Montefiore Prize of Twenty Guineas.

† Gained the MacLean Prize for Clinical and Ward Work, and a Prize in Pathology.

‡ Gained the Herbert Prize of £20, the Prize in Pathology presented by Surgeon-General Sir Joseph Fayrer, Bart., K.C.S.I., and the de Chaumont Prize in Hygiene, and the second Montefiore Prize.

Royal College of Physicians, Edinburgh.—The following gentlemen having passed the requisite Examination, have been elected Fellows of the College:—Hamilton Graham Langwill, M.B., Leith, and James Lamond Lackie, M.D., Edinburgh; and the following have been admitted Members of the College:—Alex. Bruce Giles, M.D., Edinburgh, Henry Porter D'Arcy Benson, M.B., London; and James Gibson Cattanach, M.B., Edinburgh.

University of Edinburgh.—*First Professional Examination.*—The following is the Official List of Candidates who have completed the First Professional Examination for degrees in Medicine and Surgery:—Robert Affleck, Nisar Ahmed, Henry Alexander, C. M Anderson, John Anderson, W. L. G. Anderson, H. E. Arbuckle, B. H. S. Aylward, M. C. Beatty, J. H. Bell, L. N. Biggs, A. B. Black, O. C. Bradley, William Brown, G F. Buist, R. A. Cameron, J. P. Campbell, G. S. Carmichael (with distinction), Lilian M. Chesney, A. D. S. Cooke, G. G. Cumming, Jane E. Dallas, G. C. V. K. Davidson, S L. Dawkins, John Duncan, William Eadie, S. R. Ellis, J. S. Enslin, David Ewart, William Ewart, Andrew Fleming, Charles Fraser, W. E. Frost, A. W. Fuller, J. C. Gilchrist, Norman Glegg, S. E. Goggin, St L. H. Gribben, P. S. Haldane, G. H. Hanna (with distinction), Frederick Hardie, N. E. Harding, W. E. Herbert, Davis Heron, Eleanor Hodson, D. B. B. Hughes, W. T. James, E. B. Jamieson, J. G. S. Jamieson, M. E. Jones, J. C. Kennedy, F. K. Kerr, S. M. de Kock, L. S. Lessing, G. H. Lewis, P. N. M. Macdonald, J. G. M'Dougall, Sara L. M'Elderry, Wilfrid M'Farlane, W. E. M'Farlane, J. G. MacKenna, D. S. MacKnight, P. A. Maclagan, Harriet J. C. Maclaren, Angus M'Nab, G. W. P. Maitland, Arthur Martin, K. D. Melville, E. G. D. Menzies, R. M. Mitchell, James Munro, A. W. Nankervis, Solomon Neumark, Caroline E. O'Connor, James C. Parker, William Paterson, Norman Patterson, Peterswald Pattison, C. B. Paul, Mary C. Pepper, E J. Porteous, J. B. Primmer, J. R. Prytherch, Samuel Rattray, L. C. P. Ritchie, D. J. Roberts, J. K. A. Robertson, John Ross, W. C. Ross, A. L. Roxburgh, James Scobie, J. B. Scott, W. S. Scott, S. R. Sibbald, H. O. Smith, C. B. Snow, Stephen Southall, A. D. Spence, A. J. Spiganovicz, Eleanor R. Sproull, T. G. Stewart, Elbert Steyn, M. A. Swan (with distinction), Emily C. Thomson, J W. N. Thomson, J. H. Thornley, Alexander Trotter, Alexander Tweedie, K. H. H. Uffmann, Isabel B. Venters, N. N. Wade, A. G. Watson, A. S. Watson, N. S. Wells, G. D. Whyte, F. M. Wigg, A. J. Williamson, A. W. Wilson, George Wilson, A. M. Wood, and Garnett Wright.

Second Professional Examination.—A. L. Anderson, W. N. Barker (with distinction), E. F. Bashford, F. P. Bester, S. C. Bose, E. R. Branch, A. E. Brookes, Robert Bruce, E. H. Brunt, H. M. Bundey, C. J. Caddick, I. D. Cameron, Robert Cameron, Robert Carswell, A. I. S. Coghill, E. F. Coghlan, Robert Crawford, F. P. Crowther, E. F. Cyriax, George Drummond, Henry

Duckworth, C. L. Dunn, R. W. T. Ewart, Stewart Faed, G. W. Fitzgerald, J. G. Forbes, Alexander Fordyce, Charles Forsyth, A. F. Fraser, Edmund Frost, Robert Gellatly, A. B. George, J. F. Gibbon, H. E. Gibbs, H. A. H. Gilmer, F. J. Gray, J. M. Gray, A. A. Gunn, A. G. Hamilton, Græme Hamilton, Joseph Hunter, J. W. Ingles, Clarence King (with distinction), F. O. Lasbrey, T. C. Lauder, Evariste Laval, James Leggate, P. A. Leighton, L. S. L. Liddell, A. W. Limont, A. M. Little, William Lockerbie, J. S. Low, P. L. M'All, A. J. M'Clymont, M. R. M'Dougall, A. C. M'Gilchrist, M.A. (with distinction); A. M. M'Intosh, William M'Kay, E. C. G. Maddock, M. B. Marshall, Ruth Massey, C. A. Mayne, W. P. Meldrum, C. W. F. Melville, L. H. B. Mills, James Monroe, B. E. Myers, B. K. Nariman, T. M. Ness, M.A.; A. S. Parker, F. M. Parry, G. H. Parry, L. D. Parsons, H. K. Paxton, H. R. Phillips, Thomas Pretsell, F. W. Price, William Raine, J. M. Reid, J. H. Rhodes (with distinction), F. W. Rigby, J. R. Roberts, B.Sc.; G. A. Rorie, J. E. Rosenstein, Alfred Shearer, A. B. Shed, J. A. Shoolbread, Edgar Somerville, J. F. Stewart, William Tarr, W. E. Tellet, W. B. Thain, A. H. Thomas, A. H. Thompson, P. G. Leeb-du-Toit, A. K. Traill, G. R. Twomey, R. C. Verley, Henry Wade, W. E. J. Wallis, D. B. Waters, M.A.; A. E. B. Wood, and A. H. Wood.

UNIVERSITY OF EDINBURGH.—The following is the official list of Candidates who have passed the Third Professional Examination for the degrees of M.B. and Ch.B.:—A. J. T. Allen, H. L. S. D. Belasco, Leonard Boyer, W. S. Eaton, W. H. Fowler, Gideon Fourie, William Gorrie, W. G. Heath, A. H. Keun, J. W. M'Intosh, W. E. M'Kechnie, G. W. Miller, E. F. M. Neave, J. H. P. Paton, H. K. Paxton, A. H. Pirie, C. M. Robertson, G. H. Stewart, and C. P. B. Wall.

INTERNATIONAL GOLF MATCH.—At the Annual Meeting of the British Medical Association at Carlisle, a golf match was played between teams representing English and Scottish medical men. The match took place on the Silloth Links, where the members of the Association were most hospitably entertained by the local club. The green, situated on the Solway, is a most excellent test of golf. There are few holes without a hazard, and the erratic driver finds himself at times in hopeless difficulties amidst sand and bents. The excursion was most enjoyable, and a most satisfactory one for Scotland, as her representatives won by 26 holes.

England.	Holes.	Scotland.	Holes.
J. Limont, Newcastle,	0	Argyll Robertson, Edinburgh,	0
A. Wilson, Newcastle,	3	W. H. Calvert, Melrose,	0
G. Murphy, Carlisle,	0	P. A. Young, Edinburgh,	0
L. E. Stevenson, Temple Sowerby,	2	W. Dougan, Glasgow,	0
S. R. Macphail, Derby,	0	G. M. Robertson, Murthly,	0
R. L. Clark, Maryport,	0	S. Fowler, Juniper Green,	9
W. Macleod, Beverley,	0	R. Muir, Hawick,	6
A. C. Burnett, Newcastle,	0	F. D. Boyd, Edinburgh,	1
F. M. Pope, Leicester,	0	T. Rutherfurd, Kelso,	4
F. H. Westmacott, Manchester,	0	C. M'Kenzie, Tain,	5
A. E. Morison, Hartlepool,	10	H. A. Thomson, Edinburgh,	0
M. Thompson, Hampstead,	0	C. M'Kerrow, Workington,	9
J. T. Verral, Brighton,	0	N. Walker, Edinburgh,	1
R. Howden, Newcastle,	0	F. W. N. Haultain, Edinburgh,	8
G. Martin, Carlisle,	8	W. B. Dow, Dunfermline,	0
J. Macdonald, Carlisle,	0	G. Rodd, Carlisle (sub.),	0
R. A. Taylor, Kendal,	0	G. H. M. Dunlop, Edinburgh,	0
R. Atkinson, Dorset,	0	R. Muir, Edinburgh,	6
	23		49

ACCORDING to Dr F. B. Stephenson, Surgeon U.S. Navy, the Annamite savant Petrus Truong Viuhky has solved the problem of the procreation of sex at will. He intends to lecture on the subject at Paris in 1900. Full details of Mr Viuhky's views are not given, but the following quotation points to the kernel of the matter:—"Physicians all recognise that there are in the ovary of woman both male and female germs (potentially ?). These two opposite elements should act alternately. Knowing, then, the beginning and the duration of this alternate action, our course of procedure becomes plain. Once having determined both the time of beginning (*point de départ*) and the duration—point x,—I contracted marriage. I succeeded perfectly in alternating son and daughter. In this manner I engendered a son, then a daughter; a son, then a daughter; and so continued with the fifth child, a son. I communicated my ideas to the Governor of Cochin-China and his medical staff, to their great amazement. However, I answered satisfactorily the various criticisms offered by the medical men; still, like St Thomas, they were unbelieving. 'Well,' said I at last, 'I have as yet taken no steps toward the procreation of another child (since the fifth, which was a boy). I engage to beget another boy, . . . and, sure enough, ten months afterwards I informed them that a male child had been born. Since that time, inasmuch as I desired to have boys only, boys have come, one after the other.'" —*Boston Medical and Surgical Journal*, March 1896.

Dr Kitasato, who assisted in the discovery of diphtheria antitoxin, is said to have now prepared a successful leprosy antitoxin.

"From personal observation I know," says Dr I. H. Buchanan, "that the exclusive use of pure deep-seated water affords entire immunity against malaria in sections of country where no white man dare live and use the surface water."—*Medical Bulletin.*

Soldiers who have been killed by sword thrusts have a look of repose; if killed by a bullet, a look of pain often of the most frightful nature.—*Indian Medical Record*, April 1896.

In India the juice of the datura is given to force puberty in girls.—V. S. Balasundra Mudahab, *Indian Medical Record*, March 1896.

Tincture or strong infusion of capsicum annum, mixed with an equal bulk of mucilage or gum arabic, and with the addition of a few drops of glycerine, is admirable to prevent a black eye. It should be painted all over the bruised surface, a second or third coating being given as soon as the first is dry. If done promptly, no blackening of the bruised tissue occurs. The same remedy has no equal in rheumatic stiff neck.—*Medical Record.*

NOTES ON THE EXHIBIT OF BURROUGHS, WELLCOME, & CO. AT CARLISLE, 1896.

Specially Reported for the Edinburgh Medical Journal.

Messrs Burroughs, Wellcome, & Co. controlled no less than three separate exhibits, a main central portion being devoted to a most artistic display of "Tabloids," "Soloids," etc., and to practical representations of the various stages in the manufacture of the firm's chief products, whilst the other sections situated to the left on entering the Museum were utilized for the exhibition of the Wyeth Beef Juice and the digestive products of Messrs Fairchild Brothers & Foster of New York.

The commercial aspect of the exhibit was so completely subordinated to the scientific developments of the last twelve months that medical men found in it many points of exceptional interest, notably the very complete and unique collection of bacteria growths and micro-photographs illustrating them, all produced in the firm's own physiological laboratories. In this section Anti-diphtheritic, Anti-streptococcic, Anti-syphilitic, and Anti-typhoid Serums were shown, both in liquid and dry form.

To the Kepler products a large amount of prominence was rightly given, and a most interesting display was the result, showing each successive step in the process of manufacture, from the growing barley or the living cod to the pharmaceutically elegant and therapeutically valuable Kepler Malt Extract and Kepler Solution of Cod Liver Oil. Quite a record was established in this section, as the living cod were successfully transported by rail from Grimsby, a journey of ten hours' duration. On no previous occasion has it been found possible to keep these fish alive for more than four hours under similar conditions.

Lanoline has many points of superiority. It is a fat natural to the skin, is readily absorbed, and does not become rancid. As an ointment basis it cannot be excelled. A live lamb with an exceptionally excellent fleece illustrated the original source of Lanoline, and the subsequent steps of extraction and purification were shown.

A complete collection of anatomical specimens illustrated the sources of the "Tabloids" of animal substance. The various "Tabloids" themselves, including Bone Medulla (Red), Cerebrinin, Didymin, Fallopian Tube, Kidney Substance, Liver Substance, Lymphatic Gland (Cervical), Red Marrow, Ovarian Tissue, Pancreas Substance, Pineal Gland, Pituitary Gland, Residuum Rubrum, Salivary Gland, Spinal Medulla, Spleen Substance, Suprarenal Gland, Thymus Gland, Thyroid Gland, Uterine Wall Substance, were also shown. Burroughs, Wellcome, & Co. lay particular stress in this connexion on the fact that no complete or reliable solvent for these substances has yet been discovered, and that therefore the "Tabloid" form is specially indicated for use if the entire activity of gland is to be secured in an accurate, reliable, and permanent form.

This exhibit also included a most interesting collection of medicine cases of historical interest from all parts of the world, which served to demonstrate in a very striking manner the great degree of portability the "Tabloid" system secures, and, by the perfectly preserved specimens of drugs in the compressed "Tabloid" form, adequately demonstrated the absolute preservability of the firm's products under most trying conditions of temperature and climate.

FAIRCHILD BROTHERS & FOSTER, New York.
European Agents.—BURROUGHS, WELLCOME, & CO., London and Sydney.

The digestive ferments and other preparations of this firm were tastefully displayed in a distinct exhibit. The chemical and therapeutic activity of the Fairchild enzymes have been recognized by the medical profession for many years, and their Zyminized Peptonising Tubes are familiar to every practitioner. Peptogenic Milk Powder is a valuable addition to the older products of the firm. By its use, cow's milk may be modified so as to resemble mother's milk in appearance and chemical constitution, and so rendered suitable to the infantile powers of digestion and assimilation. Pepsencia is a delicately flavoured preparation made directly from the stomach, and is valuable alike for preparing digestible junkets, etc., and for administering unpleasant remedies or such as disagree with the digestive economy. As a pleasantly-flavoured complete peptone food it would be impossible to surpass Panopepton, which contains the peptones of wheat flour and lean beef in a concentrated form.

JOHN WYETH & BROTHER, Philadelphia.
European Agents.—BURROUGHS, WELLCOME, & Co., London and Sydney.

The Perfected Wyeth Beef Juice is a preparation of undoubted nutritive as well as stimulating value, and is most pleasant to the palate. This is an important point in view of its large sphere of use in the sick-room, especially during and after severe attacks of fevers and other prostrating diseases. Most interesting experiments have led to the conclusion that the stimulating and sustaining powers of a pure beef juice like the Wyeth preparation are far superior and more lasting than those of alcohol. The Perfected Wyeth Beef Juice is prepared by cold expression, and retains the albuminous constituents of beef in an unaltered unconcentrated form.

TABLOIDS.—We have received from Messrs Burroughs, Wellcome, & Co., the well-known Manufacturing Chemists, specimens of the following "Tabloids":—1, Effervescent Lithia Citrate; 2, Effervescing Bitartrate of Lithia; 3, Uranium Nitrates; 4, Piperazine; 5, Chloralamid and Bromide of Potassium; 6, "Stypticin," an oxidation product, the opium alkaloid narcotine, and a powerful hæmostatic agent; 7, Purified Ox-bile; 8, Pancreas Substance; 9, Salivary Gland; 10, Pineal Gland; 11, Nuclein; 12, Kidney Substance; 13, Cervical Lymphatic Gland; 14, Fallopian Tube; 15, Liver; and 16, Spinal Cord. Having carefully examined these various Tabloids, we have very much pleasure in commending them to the profession. In these Tabloids we have some very valuable medicines in an excellent form for accurate and successful administration.

"SOLOIDS."—We have also received from Messrs Burroughs, Wellcome, & Co. the following specimens of "Soloids" of Compressed Antiseptics:—1, Carbolic Acid; 2, Tinc. Chloride; 3, Corrosive Sublimate; 4, Silver Nitrate; and 5, Potassium Permanganate. These compressed "Soloids" are *cone*-shaped and thus easily distinguished from tabloids, which are bi-convex in shape. The Soloids, moreover, have each a distinctive colour. This new preparation will be found most useful and extremely convenient for the surgeon. They only require to be known to be generally used.

ÆSCULAP APERIENT WATER.—We have much pleasure in recommending this excellent water. As supplied by the "Æsculap Bitter Water Company," it appears to be of uniform strength and free from organic impurity.

CAFFYN'S LIQUOR CARNIS (IMPROVED) AND VIROL.—We have received from the Liquor Carnis Company, specimens of the above, and can confidently recommend them to the members of the profession as excellent preparations.

"TANNALBIN."—We have received from Mr B. Kühn, London, a specimen of the so-called "Tannalbin." It is a *tannate of albumen* which has been subjected to a high temperature, which renders it insoluble in the stomach but soluble in the intestinal canal, and, therefore, is a useful intestinal astringent.

PUBLICATIONS RECEIVED.

Prof. Dr med. STEFAN APÁTHY,—Die Mikrotechnik der Thierischen Morphologie. Abth. I. Harald Bruhn, Braunschweig, 1896.

K. N. BAHADURJI, M.D. Lond., — An Address on the Anomalies and Evils of the Medical Administration of India: Need for Reform. A. Bonner, London, 1896.

GILBERT A. BANNATYNE, M.D. Glasg.,—Rheumatoid Arthritis: its Pathology, Morbid Anatomy, and Treatment. John Wright & Co., Bristol, 1896.

Prof. W. WATSON CHEYNE, M.B., F.R.S., F.R.C.S.,—The Objects and Limits of Operations for Cancer. Baillière, Tindall, & Cox, London, 1896.

W. H. CORFIELD, M.A., M.D. Oxon.,—Disease and Defective House Sanitation. H. K. Lewis, London, 1896.

KANNY LALL DEY, Rai Bahadur, C.I.E., F.C.S., and WM. MAIR,—The Indigenous Drugs of India. Second Edition. Thacker, Spink, & Co., Calcutta, 1896.

ROBERT W. DOYNE, F.R.C.S.,—Notes on the more Common Diseases of the Eye. H. K. Lewis. London, 1896.

E. W. GOODALL, M.D. Lond., and J. W. WASHBOURN, M.D. Lond.,—A Manual of Infectious Diseases. H. K. Lewis, Lond., 1896.

Mrs LANGTON HEWER,—Our Baby: for Mothers and Nurses. Fourth Edition. John Wright & Co., Bristol, 1896.

Prof. LEONARD HILL, M.B.,—The Physiology and Pathology of the Cerebral Circulation. J. & A. Churchill, Lond., 1896.

SAMUEL HYDE, M.D.,—The Causes and Treatment of Rheumatoid Arthritis. John Bale & Sons, London, 1896.

R. SYDNEY MARSDEN, D.Sc., M.B., F.R.S. Edin.,—Report on the Sanitary Condition of the County Borough of Birkenhead for year 1895. Wilmer Bros. & Co., Limited, Birkenhead, 1896.

SAMUEL NALL, B.A., M.B., D.P.H. Camb., etc.,—Aids to Obstetrics. Fifth Edition. Baillière, Tindall, & Cox, Lond., 1896.

GEORGE NEWMAN, M.D., EDWARD EHLERS, M.D., and S. P. IMPEY, M.D.,—Prize Essays on Leprosy. Vol. 157. The New Sydenham Society, London, 1895.

T. H. POPE, M.D., C.M., etc.,—Cataract in the Madras Presidency. Henry Frowde, London.

Sixty-first Annual Report of the British Medical Benevolent Fund for year 1895.

Prof. J. GREIG SMITH, M.A., F.R.S.E.,—Abdominal Surgery. Fifth Edition. 2 Vols. J. & A. Churchill, London, 1896.

Prof. WM. R. SMITH, M.D., D.Sc., F.R.S. Edin.,—The Laboratory Text-Book of Public Health. Henry Renshaw, Lond., 1896.

PAUL SWAIN, F.R.C.S.,—Surgical Emergencies. Fifth Edition. J. & A. Churchill, London, 1896.

Thirty-second Report of the Trustees of the Boston City Hospital for year 1895-6. Boston, 1896.

Transactions of the American Orthopedic Association. Ninth Session, 1895. Vol. VIII. Philadelphia, 1896.

A. H. TUBBY, M.S. Lond., F.R.C.S. Eng.,—Deformities: A Treatise on Orthopædic Surgery. Macmillan & Co., Ltd., Lond., 1896.

Twentieth Century Practice: Vol. VI.—Diseases of the Respiratory Organs. Edited by THOMAS L. STEDMAN, M.D. Sampson Low, Marston, & Co., Ltd., London, 1896.

Prof. I. BURNEY YEO, M.D., F.R.C.P.,—Food in Health and Disease. Cassell & Co., Limited, London, 1896.

Part First.

ORIGINAL COMMUNICATIONS.

I.—THE MEDICAL SCHOOL OF THE FUTURE.

By John Struthers, M.D., LL.D., President of the Royal College of Surgeons of Edinburgh; Emeritus Professor of Anatomy, Aberdeen University.

It is with pleasure that I comply with the invitation I had the honour to receive from your teachers to address you on this occasion.[1] The pleasure of re-appearing once more in my old school is not without the tinge of sadness as memories arise of former colleagues passed away, and of your youthful predecessors, full of life and hope, who have sat before me on these benches, some happily risen to high distinction here or elsewhere, but mostly scattered over the wide world, and not a few passed away before their teacher. Among these mingled memories it has been a new pleasure to me to resume active connexion with the venerable College under whose wing we are met, into whose Fellowship I had the honour to be admitted fifty years ago on beginning to teach anatomy. Although the large building visible to you is but of some sixty years, the successor of the ancient building in the square to which it gives the name, the College of Surgeons of Edinburgh has a long history. The most ancient of all the medical Incorporations in Her Majesty's dominions, it is now within ten years of completing its fourth century. These old Surgeons of 1505 began in the right way by requiring a previous education in advance of the age and by recognising the fundamental importance of anatomy. Before Vesalius, usually styled the Father of Human Anatomy, was born, these early Edinburgh Surgeons had secured the means of dissecting the human body by arrangement with the Town Council. The medical school of Edinburgh thus arose and grew in the College of Surgeons, and from it sprang the medical teaching in the University, when, 173 years ago, their Professor of Anatomy, the first Monro, moved from the Surgeons' ancient theatre to the University buildings; doing so for greater security from the mob in the troubles that arose through the proceedings of your predecessors in their eagerness to secure a more plentiful supply of subjects for dissection.

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[1] Introductory Address at the Medical School, Surgeons' Hall, Edinburgh, October 1895, not hitherto published.

These things are worth your knowing who now have only to step into well-provided dissecting-rooms, and it is something to belong to a College not only full of modern activities, but which can look back on such a long and honourable history. We all owe a debt of gratitude to the College of Surgeons not only for the valuable contribution it makes to medical education in Edinburgh in the great Museum of Anatomy and Pathology for which it had the foresight to provide and which it continues to maintain and extend, but in that it has persistently kept alive in Edinburgh the liberty to teach.

You expect me to speak to you of medical education. One who has spent his life in intimate and friendly relation with students should have much he would like to say on that subject, and very earnestly, to those who hope to enter the medical profession. I would begin by asking you to think of the bearing of the great truth that, as in the words of Gibbon, "Every person has two educations,—one which he receives from others, and one, more important, which he gives himself." No kind of reading is more interesting, none more likely to inspire and encourage the perhaps friendless student, than that of the lives of self-taught men. I do not mean the lives of men who have what is called got on in the world, perhaps from humble life, to be fashionable doctors amassing wealth; but of men who, whatever their rank in life, have relied on themselves and have left their footsteps on the sands of time.

In the natural sciences you may take the life of Linnæus as an example of one who rose to that amid the dire struggle with poverty; or, on the other hand, the life of Charles Darwin, who never knew the *res angusta domi* but who chose to live laborious days. In our profession you may take the lives of Harvey, John Hunter, or Edward Jenner, the country surgeon who made the great discovery in preventive medicine; and here, in Edinburgh, you may take Cullen or Charles Bell. Harvey had no teaching except that which was calculated to blind him. Hunter looked on things around him as a traveller looks on a new country. Cullen had the courage to tell his students when he found he was wrong. Every milkmaid knew the fact that led Jenner to think and experiment. Many apples had fallen to the ground before the one that led Newton to ask himself Why? Anatomists knew that the spinal nerve arises by two roots, and had year after year repeated the fact to their students, but Charles Bell asked himself Why?—worked on alone, and Nature answered him in the greatest revelation in physiology that has been made since the time of Harvey. Everybody knew that species resembled each other, but Darwin asked himself the great question, Why is it so? and the answer of the oracle has been such as to have, within my time, changed the point of view towards almost everything, physical and metaphysical.

These men went to Nature. The value to medicine and science in Harvey's life is not merely the discovery he made but the lesson he taught his contemporaries, and to us, and for all time, that we must go to Nature. The man of to-day says, Why should I trouble myself to read old Harvey's treatise, don't we all know the circulation of the blood? But that epoch-making treatise, short and modest, carries a profound lesson to us all, and, like the Sermon on the Mount, bears reading again and again.

But while it is quite true that the education we give ourselves is the more important of the two, it is a great thing to have a good teacher, one who will start us in the right path, who will give us our method. Time is our most valuable possession, and to have had such a teacher may save us years of our life, the bitter feeling as we near the end that perhaps half of even a constantly busy life has been wasted. Though we are not here from the point of view of trying to make you Harveys and Hunters, it would be a poor compliment to you not to hope that some of you will be found in the honoured rank of those who have exploded error and extended the boundaries of knowledge, or that there may not be now on these benches some one youth, not yet kindled, whose name shall go down to posterity. But we have to bear in mind that every medical practitioner has to be an observer and thinker at every bedside to which he is called, whether in the mansion or the hovel.

It will enable us to answer the question, What constitutes a good teacher? if we bear in mind two fundamental considerations. The one, that all our knowledge is derived from the observation of Nature; the other and consequent one, that such knowledge is constantly on the move. These may at this time of day seem mere platitudes, but I ask, Do we bear them in mind in our teaching, and do we train and indoctrinate our students in accordance with them?

How was it that fourteen hundred years elapsed after the time of Galen till Harvey came and discovered the true course of the blood? Many eminent men, whose names have come down to us through the ages, lived and worked. But they believed in Galen, the Divine Man, as he was called, as infallible. Galen himself seems to us to have stood on the brink of the discovery, but his own theory and his vanity stood in the way. The blood moved from the liver, out and back again, like the flowing and ebbing tide, a plausible theory if you look at a good diagram of the veins of the liver. To reach the left ventricle, where the lamp of life burned, the blood was assumed to pass through "porosities" of the septum, although he must have seen the great pulmonary orifice gaping open. Harvey went to Nature, made countless dissections of animals and experiments, over thirteen years, all the while practising his profession, and step by step arrived at his great demonstration. The famous Fabricius, Harvey's teacher, still taught that the blood went outwards in the veins, and that the valves are a wise provision to moderate the outward flow. From the time of the immortal Aristotle it had been taught that the egg-shell is soft till after the egg is laid, and Fabricius taught the youthful Harvey that that was a wise provision to save the bird the pains of parturition. Such is the fate of men who are so ready to patronise the wisdom of the Almighty. It was left to Harvey to settle that dispute simply by opening the recently killed laying hen.

You will say that these were old times, but are we sure that we too are not under the influence of authority? Cullen, in a graduation address, said—"To me it appears probable, that from the practice of medicine, as it is at present exercised, there arises much more mischief than advantage, and that it would perhaps be better for mankind if no medical practice existed at all." It is small consolation to think that medicine is not the only profession of which that might have been said. That was spoken by Cullen in the latter half of the last century, but on to the middle of the present century I can recollect the great bloodletting controversy. The theory was set up that disease had changed its type, that patients could not now bear the copious bloodlettings that had been so useful. You may smile at that, but our most respected physicians, including the Professors of the day, taught us that doctrine. It reminds one of the controversy between Sylvius and Vesalius. Young Vesalius, dissecting the human body, taught that there are five pieces in the human sternum. No, said old Sylvius, there are seven, as Galen has described. But look here, replied Vesalius, don't you see there are only five? to which the reply of Sylvius was—that may be now, but in ancient times, the days of heroes with noble breasts, there may very well have been seven.

Abundant illustration that our sciences are ever on the move, rising on the proverbial stepping-stones of their dead selves to better things, could be given from my own recollection if I had time. It has been a half century of extraordinary progress, an age of inquiry, in which all that had been accepted as truth, physical, metaphysical, and historical, has been subjected to the crucible; an age of inventions that have revolutionised our locomotion and our means of communication with each other; and much has been done to alleviate suffering and for the saving of life. Sanitary science and preventive medicine, largely new developments, have produced great results and raise hopes of still greater. In therapeutic medicine one might have expected changes; less so in more matter-of-fact surgery, but in it the changes have been still greater than in the medical side of practice. Not only painless operation, but, as regards the saving of life, the still greater boon of aseptic practice. If the great surgeons of our old Royal Infirmary—the Bells, Liston, Fergusson, Syme—could cross the bourne and see what is now done with safety, they would hold up their hands in amazement. The progress in surgery since my day in the great old Royal Infirmary reads like a romance. The ophthalmoscope and the laryngoscope, both new in my time, have done much in their limited sphere; but it is mainly to the improvement and the general use of the microscope that we owe the great progress, opening a new world to us into which the naked eye could not penetrate. Thus one new instrument may bring an era in medicine. In short, I may say in regard to the half century I have seen, that almost everything in surgery and medicine has changed. What discoveries may come in your lifetime we cannot predict, nor the source from which they will come, but you may rely on it they will come.[1]

Well, what is the lesson of all this to teachers and to students? To teachers, is it not that our duty is to take our students to Nature, to what we call practical work, and there to train them to observe and to think for themselves, and that all our teaching should be imbued with the spirit of inquiry? To students, is it not that they should seek and appreciate that kind of teaching, in preference to the kind that feeds the memory with verbal knowledge; that they should keep an open mind, and that whatever they hear should be received with what has been called "the slow consenting academic doubt."

This training of the student to observe and think for himself is by no means so easy a thing as may be supposed by those who know him only in the crowd or when he is somewhat advanced. It is the teacher of anatomy who is struck with that. Set the beginner down to a bone with his book, or let him hear a lecture of the usual kind; examine him and you will find he has not really seen anything. He has followed his previous habit at school, has learned his lesson and is ready to repeat what he has read, or more or less of what he has heard. He has to be taught to look and see at every statement that it is so. He has heard the customary lecture on or has been reading about the vertebral column. He will give you off the number of vertebræ in each region, but is pulled up at the question, How do you know? He replies that he heard it, or that his book says so. To the question, Have you counted them? he replies No, with a look of surprise. You hand him a spine and ask him to count. To train him in comparison and to make him think, you send him to the museum to observe how many vertebræ there are in the neck, long or short, of the various mammalian skeletons there, and to come back and tell you what he has found. He has a sacrum before him, and you ask him whether its length or breadth is the greatest. He had not thought of that before, but readily says its length. You put into his hand that useful training instrument, a little foot-rule, and ask him to measure. He finds that his eye has misled him, and learns the value of measurement. If it is a foramen called oval, you ask him whether it is oval or ovoid? if the latter,

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[1] Since the above was written the Röntgen rays discovery has come. This is the dawn of a new era in surgery, a resource probably as yet only in its infancy.

Which end is the sharp one? Which side is the most concave? What is its direction? etc. That may be of no moment for its own sake, but it trains him to observe, and he will have a sharp eye in his clinical work. At the very first, fresh from his school method, he seems to think this a waste of time, but you see that soon he has discovered a new power within him and that he delights to exercise it.

I should like to impress upon teachers of anatomy the responsibility that rests with them in giving the student the right start in method. It has been said that, besides its intrinsic importance, the value of anatomy is that it trains the memory. That is exactly what I deprecate as an entirely erroneous method of teaching anatomy. Although the dissection may be on the table or even in the lecturer's or demonstrator's hand, the teaching is too often verbal, addressed to the memory. That has struck me, shocked me shall I say, in the course of my duty as examiner in anatomy, and of candidates from various schools. They readily spin off answers from memory without being able to recognise the object when handed to them. For instance, I have known such a thing as a candidate giving quite a beautiful account of the characters of the typical cervical vertebra when the bone handed to him was a typical dorsal vertebra with the request to say to which group it belonged.[1] Much time, I am sure, is wasted in the anatomical lecture-room in putting for the memory details for which the practical rooms are the right place, while the opportunity is lost of directing the student's eye and thought to the really important and interesting things of anatomy. And if that is to be said of the customary lecture on a subject so demonstrative as anatomy, I ask what is to be said for details addressed to the memory in the customary lecture on subjects in which there is so much less, or little, to present to the eye, instead of leaving them to the laboratory or the bedside, and to the printed page?

As bearing on the present system of the medical schools, you will have perceived that these views imply that there should be more practical work, that is, more going to Nature, and less time consumed in the lecture-room. In, say, this last quarter of a century the amount of lecturing has not been lessened but increased. Special departments have been split off, with the inevitable addition of special courses of lectures, while the general courses have not been shortened. Classes more or less "practical" have been added in nearly every subject in the curriculum of study, without the corresponding diminution that should have taken place in the time occupied with lectures. The result is congestion. The student is pulled about from class-room to class-room; hardly settled to his dissection or to some other laboratory work when he is summoned off by the lecture-room bell. It has not been a case of the venerable illustration of putting new wine into old bottles, but, if the simile may be continued, of trying to put two pints into a one pint bottle.

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[1] See Appendix.

In case you may think these views erratic, let me quote to you the deliverance of the General Medical Council, by whom these questions were fully discussed when the Council, four years ago, resolved to extend the period of study to five years. The Council gave the following definition of what practical work should consist, with an appreciation of its primary importance: —

> "Due time should be set aside for Practical Work in the various subjects. By a Practical Course is understood one in which work is done by the student himself, under the direction of a duly qualified teacher."

Then as to the amount of lecturing: —

> "The Regulations requiring attendance on Systematic Courses of Lectures need not require attendance on more than three Lectures weekly in any one Course."

They are before us in France in having thought out these questions. You may see the account of their system in the report which it fell to me to prepare for the Medical Council, as chairman of its Education Committee, when we were planning the new five-year course, after careful inquiry into the systems followed on the Continent. The system in Paris, stated shortly, is: — The first, the better, half of the day is set aside for the hospital and for practical work in the laboratories; no lectures allowed before 2 o'clock; and the number of lectures in any course are two or three a week, never exceeding three. No one will say that medicine is not well taught in Paris.

That may be taken as my ideal of our medical school of the future. There may be difficulties to overcome and the transition may be gradual, but it is manifest that the modern demand for more practical teaching in all the branches and for more clinical work will oblige the schools to move in that direction. It has been suggested to me that it would be well if all lecturing in our medical schools could be stopped for a couple of years, so as to throw us upon our resources for the giving and acquiring of real knowledge. Lectures will always deserve to hold a high place in medical education when they are of reasonable number and of a high order; the teacher going before his assembled class not as grinder but as commentator, guiding and inspiring his students, introducing more or less demonstration or experiment according to the nature of the subject and of a kind suitable before the crowd. In such a bi-weekly or tri-weekly lecture there will be more benefit from the "living voice" and more of the "intellectual atmosphere" than in the kind of lecture in which a stream of "information," nearly all of it already in the student's hands in the printed page, is poured from day to day upon the memory.

The very term "Lecturer" is unfortunate. The "Demonstrator" in the practical rooms is not satisfied until he has got to the lifting up of his voice in the lecture-room, though his first office is really the higher one. The lecturing way is the easier way, and it gratifies human vanity to stand up before a class and speak. The young student, too, is said to like it, as yet knowing no better, but I doubt whether the advanced student relishes four hours a day in the lecture-room besides his clinical work. The lecturing system had its origin and rise in the absence of other means of obtaining a complete account of the subject according to the accepted knowledge of the period. That cannot be said now. It is not "book knowledge" I plead for. I deprecate trusting to verbal knowledge whether obtained from books or from lectures. I would say to the teacher, Leave to books what books can do, and do you for the student that which books cannot do. Take him to the Book of Nature. As to lectures, the question is one between use and abuse, between lecturing and over-lecturing. But the primary question is, Has sufficient time been set aside for practical work in the dissecting-room and in the other laboratories and for clinical work at the Hospitals? Until that is done there is no ground for discussion, and when that has been done the rest may be left to adjust itself.[1]

It would be an omission not to notice the changes implied in the institution of the five-year course. These affect especially the first and the last year of study. In regard to the studies of the *first* year, I wish to give a friendly hint to teachers of the new subjects—physics and "biology," so-called—that these studies are being pressed further than was intended by those who were responsible for bringing them inside the medical course for all students. It was a question with us in the Medical Council whether to do so or to place them in the preliminary examination. We expected that bringing them inside the course would secure their being more practically taught. But if this is to end, as would appear, in the student having to attend both a lecture-class and a "practical" class in each, interfering with more important work, it may yet lead to these subjects being relegated to the preliminary examination in general education. There was much to be said for the view that in the old four-year course the thorough beginning with anatomy, followed by physiology, was an excellent introduction to biology and to method. The student will get more insight from dissecting the limb of a man than the limb of a frog. I was quite aware, in taking my part in introducing these new subjects, that there would have to be some re-arrangement of the anatomical teaching in the first year, but it will not do to push anatomy out of the first-year studies. To say nothing of its inherent utility and the method it brings, how else is the student to be ready to study physiology in his second year?

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[1] It may be here noted that the regulations of our Medical Boards do not now require us to give so many lectures as they did till a few years ago,—100 lectures in the winter courses, 50 in the summer courses, implying a daily lecture. The regulations of our Conjoint Board say expressly that systematic lectures need not be oftener than thrice a week; and under the new Ordinances of our Universities it is left open what the "number of meetings" in any course shall be, and "what proportion of the courses shall be devoted to lectures, practical demonstrations, examinations, and tutorial work respectively." Professors and Lecturers alike may thus reduce the number of lectures and give more time to practical and clinical work if they like. It will be interesting to see which of our schools will take the lead in this.

In regard to the work intended for the new *fifth* year, now impending, our purpose in the Medical Council was that it should be entirely devoted to clinical work, as thus expressed by the Council:—

> "The fifth year should be devoted to Clinical work at one or more Public Hospitals or Dispensaries, British or Foreign, recognised by any of the Medical Authorities mentioned in Schedule (A) of the *Medical Act* (1858), provided that of this year six months may be passed as a pupil to a Registered Practitioner possessing such opportunities of imparting practical knowledge as shall be satisfactory to the Medical Authorities."

It is to be hoped that the medical schools will loyally carry out that purpose and abstain from endeavouring to induce the student to make it another year of lecture attending. With that view the fourth-year student should make a point of finishing off with all the courses of lectures he is required by the regulations to take.

A word of explanation I feel it due here to make in regard to the necessarily critical nature of these remarks in pleading for my ideal of the medical school of the future. Had they been intended for this school in particular, I would have felt myself in the position of the prophet in the venerable tradition, who was asked to come and bless, but who did something altogether different. To prevent any such misconception, I make a clean breast of it by saying, that any youth intending to study medicine would get from me without hesitation the advice to turn his face to Edinburgh, with in all probability the further advice to ask me when he got there what he should take and what leave. A well-equipped and ably-officered University; around its walls the Extramural Schools, with their large body of active teachers in useful and honourable rivalry with the teaching within the walls; dissecting-rooms and other laboratories unsurpassed; great museums; and, close by, the grand new Royal Infirmary, the true centre of the School, with its large and active staff of surgeons and physicians. Such a combination of opportunities and activities I know not anywhere else in Her Majesty's dominions. The school will not, I trust, take it amiss my having offered these criticisms and suggestions, which I submit respectfully to teachers and students alike, as coming earnestly from one who is near the end of a long life spent in medical education and in endeavouring to improve it.

APPENDIX.

On the present Examination System in relation to Medical Education.

The subject of Pass Examinations, though not suitable to be discussed in an address to students, has too important a relation to medical education not to be noticed here. The present system has, in my opinion, an injurious influence on education and requires the serious reconsideration of the Examining Boards.

It is a deplorable fact, as the annual returns made to the Medical Council show, that about one-third of the candidates are rejected, and that at some of the Boards, at the final examination especially, the proportion is even higher, approaching one-half. There is in that evidently something wrong either in the education or in the examination. Unless there is some exceptional want of ability, it does not appear why every student who has worked fairly well should not pass if he gets time to show what is in him, and if what a student can be reasonably expected to know is kept in mind. The uncertainty attending the examinations has itself a disturbing effect on the student and leads him to think of special methods of preparation, for which he has recourse to a grinder instead of trusting to his teacher and to fair steady work. From my long and intimate relation with students, I would say that the average student works fairly well. There is a small percentage of the Prodigal Son, and there are a few who have somehow got through the preliminary examination in general education at which they should have been stopped on the score of deficient ability; but these together are, according to my impression, far from amounting to one-third of the whole. It is the duty of the teacher to see that the student is kept at his work, but the average student needs little of that; he takes to his work readily and likes it, and works fairly well, not shirking class examinations.

The primary error in the present system is the number of the examinations. The student works for these examinations, in the dread of them, rather than to know his work; in short, grinds and crams for each successive bit of the examinations. There are not only the four statutory examinations, but these may be subdivided variously. The regulations of the Conjoint Boards allow of this subdivision to a large extent. It is especially injurious at the final examination, at which the subjects of Surgery, Medicine, and Midwifery may be entered for separately at even long intervals. By the time he enters for the second or third of these three parts he may have forgot what he had crammed for the first or first and second parts. It is clearly the meaning of the final examination that it should test a candidate's general fitness to practise his profession. The system is entirely indefensible. The English Conjoint Board is primarily to blame for this, and the Scotch Conjoint Board excuses itself on the ground that it must follow suit.

It appears that candidates like this system, which may be taken as further evidence that cramming is reckoned the safest way of getting through. The antecedent influence on the legitimate teacher is injurious. He has to bend to it and becomes a lecture-room grinder for the approaching bit of the examination. It may seem a hard thing to say, but the lecture-room teaching of the day has drifted largely in this direction. It will be found, I believe, on inquiry that many students in addition take out a grinder in the same subject, a grinder, observe, who has not the means of giving objective or clinical teaching, but who professes to prepare the candidate for the examination.

I ask, What is to be said for an examination so conducted that such preparation is believed to be useful for it? Does it not show that word knowledge, not real knowledge, is at a premium at the pass examination? As an examiner in that matter-of-fact subject, anatomy, I again and again meet with candidates who are painfully crammed, but who break down on the common dissections, or even on the bones, placed before them. One is quite sorry for them, in the method they have trusted to ; half the pains they have taken would, if applied in the right way, have enabled them probably to get through.

A great encouragement to this cramming work is the importance now given to written examination. It tests cramming knowledge, verbal knowledge, only. Written examination appears to be a British specialty, and is a comparatively modern one. As far as I could learn, in preparing a report on the subject for the Medical Council, there is no written examination for passes in France or in Germany. Here they began in our University in the middle of my student time, and there was no such thing when I passed for the Licence and Fellowship of the College of Surgeons, nor was there at the London College. Now they have assumed great importance, and many students are rejected on them, not allowed to go forward to the oral and practical parts of the examination. Long and attentive experience in working my class satisfied me that written examinations often do great injustice to students. Some who write what is called a poor paper come to the front at the oral and practical parts, and *vice versa.* So strongly do I feel this that I have little faith in the lists of class honours gained, as they generally are, on written examination only ; and for pass examinations I very seldom stop a candidate from getting on to the oral and practical part at which he may redeem himself.

That may not apply so much in subjects that admit of less demonstrative treatment than anatomy does, but there is no subject in which a candidate may not be fairly tested in an oral and practical examination if he is given time. That I hold to be a great blot on the present system ; the candidate is not given time at the oral and practical examination to show what is in him. It requires patience and consideration to be an examiner. There are some wonderfully clever men who say they can decide in five minutes. I have been at that work for forty years, at various Boards, and have examined I would not venture to say how many candidates, but I confess to often being uncertain, in the time usually allowed, whether the candidate should pass, unless I had taught him and had often examined him orally in the class. It is a distressing position to be in, to have to say whether the public or the candidate should have the benefit of the doubt.

Then, there often is forgetfulness as to what can reasonably be expected from candidates. In the sciences, experts are set upon him who expect him to know the details they have come to know ; and, clinically, experts again expect him to know what years have enabled them to know. The experts are for the most part teachers, and no examiner is so unreasonable in his expectations as the young teacher. I beg not to be taken as one who would lower the standard of examination. My object ever has been to raise it, and to do so by applying the kind of examination that will test real knowledge, the kind of knowledge that fits a man for the practice of his profession. I have alluded to teachers being examiners. I do not object to that. They, or those who have recently been teachers, know, or should know, best the kind of knowledge a student can possess ; but they are apt to carry the examination too much into detail. The pass examinations have got too much into the hands of teachers. The aim of the examination should be to see that the candidate has such a fair acquaintance with the subject as may suffice for the practice of his profession, such knowledge of it as a fairly-working student can reasonably be expected to have, and, with that view, one of the two examiners present should not be a teacher of the subject.

I say, generally, that the aim of all pass examinations should be, not to test what a student can cram up, but what he has retained. I hold that our present examination system is doing the former and is not doing the latter ; that the system is thereby discouraging the best method in medical education, while it fails to accomplish its own purpose. I submit, therefore, that the examination system should undergo the following re-arrangement:—That the statutory examinations should be reduced to three, without subdivision and with definite intervals. That the *first* examination, including chemistry, physics, and biology, on a reasonable standard, may take place when the student likes; that the *second* examination, including anatomy and physiology, may take place at the end of the second year, but not till at least a year has intervened after the first examination has been passed; and that between the passing of the second and admission to the *final* examination, on the remaining subjects, there should be an interval of at least two years. I see no good reason for separating materia medica and pathology from medicine and surgery in a final examination, if the aim of the examination is to test what a candidate has retained, not what he can cram up. That view may not please teachers, but teachers have now got too much say in the framing of regulations as well as in conducting pass examinations. Their duty in examination is in conducting their class-work. I see no harm in exempting a candidate from re-examination in any subject in which he makes a decidedly good appearance, but that is a very different thing from admitting candidates to examination on individual subjects. Finally, that less, much less, importance should be attached to the written part of the examination, and more time given to the oral and practical parts.

II.—ON A CASE OF DIABETIC NEURITIS, WITH A DESCRIPTION OF THE POST-MORTEM EXAMINATION OF THE NERVES AND MUSCLES.

By THOMAS R. FRASER, M.D., F.R.S., F.R.C.P. Ed., Professor of Materia Medica and Clinical Medicine in the University, and ALEXANDER BRUCE, M.D., F.R.C.P. Ed., Assistant Physician to the Royal Infirmary of Edinburgh.

(*Communicated to the Edinburgh Medico-Chirurgical Society*, 15*th May* 1895.)

SYMPTOMS indicating involvement of the nervous system in diabetes mellitus have been recognised for several years, especially since Bouchard drew attention, in 1884, to the loss of the knee-jerk in this disease. More recently, it has been definitely shown, by the occurrence of such symptoms as motor weakness, parasthesiæ, neuralgic pain, and impairment of vision, that peripheral neuritis may be associated with this disease. The evidence of this association, however, has mainly been derived from clinical observation, and in only a few instances—such as a case published by Pryce,[1] two cases published by Eichhorst,[2] and three cases published by Auché[3]—has it been demonstrated by post-mortem examination that the symptoms indicating peripheral neuritis had actually been produced by this condition. It may, therefore, serve a useful purpose to put on record an additional case, in which post-mortem examination confirmed the diagnosis of neuritis in a patient suffering from diabetes mellitus, more especially as certain changes were found in the muscles, which appear to have hitherto been overlooked.

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[1] *Brain*, vol. xvi. 1893, p. 416.
[2] *Archiv für Path. Anat. und Physiolog.*, vols. cxxvii. and cxxviii.
[3] *Archives de Médecine Expérimentale et d'Anatomie pathologique*, 1890.

William S., aged 36, an engine-fitter, was admitted to Ward 26 of the Royal Infirmary on 12th October 1894, suffering from feebleness, emaciation, thirst, polyuria and amblyopia. No tendency to any special disease was indicated in his family history. There was no indication of syphilis. His circumstances had been fairly good, and he had been temperate as regards alcohol, rarely drinking whisky or beer, and then only on occasional Saturdays, when he never exceeded two glasses of whisky. Until August 1893 he had enjoyed excellent health. Several weeks before this time he had suffered much anxiety on account of the severe illness of his wife, and had also been deprived of sufficient sleep and rest. Gradually, thirst and increase in the frequency of micturition attracted his attention, and, with advancing weakness, caused him to enter the Western Infirmary of Glasgow in September 1893, when it was discovered that he was suffering from diabetes mellitus. He improved greatly under treatment, mainly dietetic, and was able to return home in nine weeks. Before he resumed work, however, his wife again became ill, and renewed anxieties and discomforts caused a relapse in his condition. His vision also became impaired, especially for near objects, and in June 1894 he found himself unable to read.

When admitted into the Royal Infirmary, he weighed only 8 st. 2 lbs., his weight formerly having been 10 st.; he had a careworn expression, subnormal temperature and dry skin, with two pigmented areas on the right side of the abdomen. When on ordinary diet his appetite was great, he had much thirst, and his bowels were constipated. Neither the liver nor spleen was enlarged, and although the skin was pale in colour, examination of the blood showed that there was no anæmia.[1] The heart's action was feeble, and there were phthisical changes in the upper lobe of each lung.

On his admission, and so long as he was on ordinary diet, from the 13th to the 25th of October, the urine gave the following averages:—

Quantity in twenty-four hours, 195·4 ounces; specific gravity, 1038·8; grains of urea per diem, 568·8; grains of glucose per diem, 7187.

Under restricted diet, the averages from the 26th to the 31st October were—quantity in twenty-four hours, 132·5 ounces; specific gravity, 1035·4; grains of urea per diem, 738; grains of glucose per diem, 3862.

When to the restricted diet pancreatin was added, from 1st November to 21st November 1894 the averages were—quantity in twenty-four hours, 120·3 ounces; specific gravity, 1030·9; grains of urea per diem, 657·9; grains of glucose per diem, 2736.

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[1] The red corpuscles numbered 4,960,000, and the leucocytes 13,000 per c. mm.; there was 74 per cent. of hæmoglobin present, and the specific gravity was 1062.

No albumen was found in the urine during the patient's residence in the Infirmary.

In addition to these ordinary symptoms of diabetes mellitus, *the patient, from the first day of his admission, suffered from pain in the calves of the leg and in the ankles, of a dull cramp-like character, which was felt when he stood after walking a short distance, and also frequently while he was in bed; and he stated that he had suffered from these pains for three or four months previous to his admission. They varied in severity, and were sometimes so severe as to waken him from sleep.* There was, however, no numbness, formication, or abnormal sensation of heat and cold.

It was ascertained that the tactile, thermal, and pain sensibilities were normal; *but both calves were found to be very tender even on slight pressure, and pressure also caused pain when applied to the front of the ankles, over the tibia and fibula of each leg, to the external lateral ligament of the right ankle, to the anterior tibial muscles of the right leg, to the left inner hamstring muscles, and to the right biceps.*

The knee-jerk was absent on both sides, and there was no exaggeration of any of the superficial or deep reflexes.

The patient could stand without swaying with the feet close together and the eyes shut; no peculiarity was observable in his gait when walking, and the sense of position of the limbs was normal.

Amblyopia was present, and small objects, such as the fingers, could not be seen when at a greater distance than 4 feet. There was a central scotoma for red in each eye, but the field of vision was not restricted, nor were the fundi abnormal. There was no defect in any of the other special senses.

Notwithstanding the improvement in the urine, and a slight increase in body-weight, the progress of the illness was unfavourable. Mental torpor, general weakness, gastric disorder, and cardiac weakness gradually increased, until at the middle of October the patient could no longer leave his bed. On the 19th of October it was observed that the chloroform or acetone-like odour, which had for some time been present in the breath, had become much more pronounced. The symptoms of pulmonary disease became more urgent, vision more defective, and the pain and tenderness of the legs more severe. On the 20th of November the breathing was rapid, dyspnœa appeared and soon passed into orthopnœa, the pulse became rapid and weak, and in a few hours the patient was unconscious. Death occurred on the forenoon of the following day; but no albumen appeared in the urine, nor could fat be detected in the blood, when a specimen of the blood under the microscope was tested with osmic acid. While the patient was in the hospital, and until three days before his death, the temperature had usually been subnormal, and had always been so on each morning, ranging between 96°·4 and 98° F. On the 18th of November the morning temperature, however, was 99° F., and on the 21st of November it was 99°4 F.

At the post-mortem examination, made on the 22nd of November, it was found that both lungs were phthisical, with breaking down of limited areas of lung substance, but no other gross pathological changes were observed.

The optic and posterior tibial nerves and portions of the tibialis posticus muscle were examined histologically after being carefully hardened in Müller's fluid in the usual way. The optic nerve (see Fig. 1) showed well-marked parenchymatous degeneration in various stages. Sections stained by the Weigert-Pal method showed a somewhat reniform area, a little to one side of the centre of the nerve, in which the degeneration was most advanced. This was evidenced by the pallor of this portion. The great majority of the fibres failed altogether to stain, or only held the colour very lightly. Round this was a zone in which the stain was much deeper, but even here the fibres were not by any means all normal. The periphery of the nerve showed a stage of degeneration intermediate between that present in the two parts already described. Pieces of the nerve from a part closely adjacent to that from which these sections were cut were transferred directly from Müller's fluid, in which they were originally hardened, into Marchi's fluid (Müller's fluid 2 parts, osmic acid 1 per cent. sol., 1 part) for ten days, and were then embedded in celloidin and cut in the ordinary manner. The black droplets of the osmic acid reduced by the degenerating myeline were most marked, not, as one might have expected, in the pale reniform area, but at one extremity of this and in the darkly-stained zone in its concavity. A number of black droplets were also found, but to a less marked extent, in the narrow peripheral zone.

A comparison of the conditions revealed by those two methods of staining showed that the degeneration was most marked in the paler part of the central area, where the myeline had become almost entirely absorbed, and that it was still proceeding actively immediately around this area, as was shown by the fact that the fibres still retained the hæmatoxylin, although in an abnormal way, as well as the osmic acid.

Staining by ordinary hæmatoxylin and eosin showed some slight increase in the connective tissue in the endoneurium and perineurium. The cells were mostly rounded or spindle-shaped, and were apparently most marked in the portion of the nerve which was most degenerated. Here they were found between the individual nerve fibres and in the connective tissue binding groups of fibres together, but their number was so small compared with the degree of degeneration that they could only be looked upon as being formed secondarily. The posterior tibial nerve, examined in longitudinal sections stained by Pal's method, showed very high degrees of degeneration, as is represented in Fig. 2. The degeneration was apparently almost entirely limited to the myeline sheath of the fibres, the continuity of the axis-cylinder being maintained in almost every individual instance. The axis-cylinder in most of the fibres, whatever their stage of degeneration, showed varicosities which varied in breadth and in length in different instances. (See specially A, C, D, E, Fig. 2.) The myeline showed very different stages of degeneration in different fibres. In some (A and G) the axis-cylinder was almost entirely denuded. In others (such as F) the degeneration was beginning, apparently by a splitting up of the myeline into short segments. These left the axis-cylinder uncovered here and there, and also showed numerous annular constrictions which retained the hæmatoxylin somewhat more intensely. In other sections the myeline seems to have broken down into smaller masses and granules, which stained lightly with hæmatoxylin. The sheath of Schwann seemed to persist after the disappearance of the myeline. In most of the fibres it was shown, still retaining the dark hæmatoxylin stain, with apparent interruptions where it had been completely decolorised. In sections stained with alum-hæmatoxylin and eosin the persistent portions of the myeline sheath presented an imbricated or funnel-shaped appearance (this is seen to some extent in fibres C and H) which was probably due to the remains of the Schmidt-Lanternmann's constrictions. In some of the less degenerated fibres there was an irregular net-work which stained with eosin. The nuclei of the sheath of Schwann were increased in size and formed marked fusiform swellings on alternate sides of the axis-cylinders of those fibres from which the medullary sheath had disappeared.

Small portions of the tibialis posticus muscle were cut in celloidin, some of them after previous treatment with Marchi's fluid. Sections stained by Pal's method showed a degeneration in the interfascicular branches of the nerve which was of the same nature as that already described as occurring in its trunk. Sections stained by the ordinary hæmatoxylin and eosin method showed here and there a slight increase in the distinctness of the longitudinal striation, but no change in the nuclei of the sarcolemma, or of the connective tissue between the fibres. The longitudinal striation was explained by the reaction of the osmic acid, and was seen to be due to *rows of fine fat granules between the fibrillæ of the muscle. The granules were all extremely minute, and seemed to be developed from the cement substance rather than the muscle fibrils.* In the portions of the muscle where this degeneration was found *the transverse striation of the fibres had disappeared.* This degeneration did not affect each muscle fibre or the whole of any one fibre, but rather short lengths of the fibres, and gave the section an appearance somewhat like that seen in fatty degeneration of the heart (Fig. 3). The change uscle

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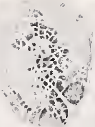

Fig I

[illegible]

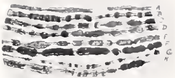

Fig II

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Fig III.

[illegible]

Fig IV

[illegible]

[illegible]

was quite different from that found in a degenerating muscle after section of the nerve.

It was somewhat surprising that the optic disc and retina showed to the ophthalmoscope so little evidence of any morbid change. This may have been due to the nature of the degeneration, which appeared to be the same as that found in the posterior tibial nerve.

From the above description it is evident that the nerves examined were affected with that peculiar form of degeneration which is usually (and somewhat inappropriately) termed parenchymatous neuritis.

In this case the special features were the degeneration of the medullary sheath, the persistence of the axis-cylinder, and the absence of secondary degeneration in the nerves or in their end organs (retina, muscle).

The process seems to be most nearly allied to that first discovered and described by Gombault (*Archives de Neurologie*, parts 1 and 2, 1880) as *néurite segmentaire periaxile.* It was found by Gombault in the nerves of guinea-pigs to which minute quantities of white lead had been administered along with their food for long periods, that even before symptoms indicating any nerve lesion had appeared the peripheral nerves became altered in the following manner:—The medullary sheaths over short lengths of the fibre, (corresponding to one or more nodes of Ranvier), between which the fibre remained healthy, showed a breaking-up of the medullary sheath into fine granules. These granules became ultimately absorbed either in solution or by the intervention of leucocytes, which had made their way through the primitive sheath of Schwann. The axis-cylinder, however, persisted, although never in a quite normal condition, being always more or less varicose or moniliform, and generally showing a more distinct longitudinal striation than in the normal condition. This twofold feature of persistence of axis-cylinder and degeneration of the medullary sheath is indicated by Gombault's term, *néurite segmentaire periaxile.*

It is true that in the nerves examined the segmentary character of the change in the medullary sheath was not present, or at least was not made out, as in all cases the myeline had degenerated over a longitudinal extent corresponding to a large number of nodes of Ranvier, without any indication of healthy intervening portions of fibre; but in other respects—the breaking down of the myeline, and the persistence and irregular swellings of the axis-cylinder—the process closely resembled Gombault's neuritis.

In this respect it differs from most cases of alcoholic neuritis, where the axis-cylinders usually give way and secondary degeneration follows in the muscles. It is, of course, possible that this change might take place also in severe cases, or in late stages of diabetic neuritis.

The amount of newly-formed connective tissue was slight, and not such as to suggest any primary interstitial neuritis. (This would appear to have been present in Pryce's case.) When this occurs as a secondary change in parenchymatous neuritis it would appear to vary greatly in amount in different cases, being generally well marked in alcoholic neuritis, and, on the other hand, absent in neuritis due to mercury.

In this case it was much more marked in the optic than in the posterior tibial nerve. This may be attributable partly to the fact that the neuritis in the optic nerve antedated that in the latter nerve; but also to the fact that the patient was a heavy smoker, and that the neuritis in the optic nerve may have been partly due to tobacco.

The change in the muscle is a somewhat remarkable one, which we have not had occasion to examine before, and cannot find any account of in the literature of peripheral neuritis. It is characterized by small areas in which fat droplets form in rows between the fibrillæ of the muscle. This might be termed a *disseminated interfibrillary fatty degeneration of the muscle*, and is accompanied by a gradual disappearance of the transverse striation of the muscle fibre, but not by any multiplication of the nuclei either of the sarcolemma or of the connective tissue. This process is so completely different from that which results from descending degeneration of a nerve that it appears to be due to an independent and direct action on the muscle itself of some toxic substance rather than to any want of trophic influence on the part of the nerve.

The pathological changes and the associated symptoms seem clearly to be caused by a toxic substance, which acts directly on the medullary sheath in the nerve fibres, although recent examinations of the spinal cord in analogous processes render it probable that the nerve cells are also involved. The localized affection of the myeline of the peripheral nerves shows a curious similarity to the affection of the fibres in the central nervous system in multiple sclerosis, where the myeline is also first affected while the axis-cylinders long remain unaltered, and, consequently, secondary degeneration appears only occasionally. There the process always begins in the neighbourhood of some vessel, and appears due to the exudation from it of some poisonous substance capable of directly acting on the hyaline sheath. In both cases the affection of the nerve is more a degenerative than an inflammatory one.

The actual causal relationship between these pathological changes and diabetes mellitus has not yet been ascertained. In the greater number of the recorded cases, the age of the patients has been above 50. As in the neuritis originating from other causes, much diversity occurs in the symptoms of original cases. Leyden has distinguished three groups:—1. *The hyperæsthetic or neuralgic group*, in which pain is the prominent symptom, although it is usually accompanied with weakness in the parts supplied by the affected nerves; 2. *The motor or paralytic group*, in which paralysis predominates, implicating especially the muscles of the lower extremities, and accompanied with loss of the knee-jerks; 3. *The ataxic group*, in which, however, the ataxia is nearly always complicated with parasthesia and with loss of the tendon-reflexes, but in which the iris-reflexes are retained.

Marked symptoms of neuritis appear to occur in only a small number of cases of diabetes mellitus, although slight symptoms are probably present in a considerable proportion of the cases. The amount of sugar in the urine does not appear to have much significance. Cases of diabetic neuritis have occurred both where the quantity of sugar was large and where only a small quantity was present in the urine. Further, some experiments made by Auché seem to prove that sugar itself, even under prolonged contact, is unable to produce neuritis, or, indeed, of acting more injuriously on nerves than water alone. The neuritis is apparently caused by a substance originating from sugar, and not improbably from a derivative of alcohol produced from the glucose of diabetes mellitus.

III.—TERATOGENESIS: AN INQUIRY INTO THE CAUSES OF MONSTROSITIES.

III.—The Theories of the Past (*Concluded*).

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E.

(*Read before the Edinburgh Obstetrical Society, June* 10, 1896.)

(*Continued from page* 255.)

In the Nineteenth Century.

The nineteenth century opened with the question of maternal impressions still unsolved. Medical opinion took one of three lines: complete belief in the potency of a mother's imagination to mark her fœtus in exact resemblance with the object acting upon her mind; or complete disbelief in any such power; or an intermediate line of partial acceptance of the doctrine of maternal mental influence over the infant,—an attempt to reconcile the traditional belief with the spirit of modern scientific inquiry.

It now became increasingly difficult for the trained physician to accept the old doctrine, for the reseaches of the eighteenth century had demonstrated that there was no direct communication between the circulatory system of the mother and that of her fœtus, and in the early part of the nineteenth it became evident that no demonstration of a structural nervous union could be given. On the other hand, the effect of these anatomical discoveries concerning the connexion between mother and unborn infant was to some degree discounted by the enunciation of animal magnetism by Mesmer, and its partial acceptance by the medical profession; for if its tenets were correct, there was no longer any need for the demonstration of nerves in the umbilical cord.

In the first year of the century Desgranges (84) published his communication in support of the maternal imagination theory, specially in reference to nævi materni, and he has been followed by a long series of writers, some favourable, some inimical, to the doctrine. Besides the authors who have made special contributions to this subject, nearly every one who has written on midwifery, surgery, diseases of children, and dermatology, has ranged himself amongst the believers, the unbelievers, or the neutrals. An enormous literature has, therefore, gathered around the question of the mother and her influence upon her unborn child, and it becomes impossible to do more than point out certain of the more important articles which have dealt with the matter.

If we consider first what the teratologists of the nineteenth century have said on the subject, we shall find a very marked leaning towards the total condemnation of the theory of maternal impressions. Jens Bang (86), it is true, supported the old doctrine, and Jouard (90) took up an intermediate position; but nearly every one else has showed great scepticism, some even passing the subject over in complete silence. Tiedemann (97), in his work on acephalic fœtuses, pointed out that only in one case was an impression recorded; further, he insisted that the fact that one twin was commonly normal whilst the other was so deformed was a strong argument against the theory; and, finally, he propounded the question, What imagination of the mother could be at work to produce in the infant a one-horned uterus or an intestinal diverticulum? Zimmer (89) and Clesius (94) also opposed the imagination theory, and Herholdt (113) entered at great length into its history. We find Etienne G. Saint-Hilaire (111) taking an intermediate position, whilst he pointed out that prolonged moral impressions could have little or no teratogenic effect, as shown by the very small number of monstrosities born in such a large city as Paris. He also noted three cases in which a sudden and sharp impression was the cause of anencephaly, not through the imagination alone, but on account of the sudden uterine contraction thereby produced, and the consequent pressure on the ovum or embryo. He thought that prolonged emotions might weaken the fœtus without making it actually monstrous. Isidore G. Saint-Hilaire (124) adopted largely the views of his father in this matter; but he more clearly defined the sphere of action of an impression. Violent and sudden impressions may cause monstrosities in the manner above indicated; moderate or feeble, but long-continued impressions may also, it cannot be denied, produce malformed and even monstrous infants; but it cannot be believed that slight and transient desires, feelings of disgust or of fear, etc., have any influence upon the form of the unborn infant. "Il est surtout contraire à toutes les données de la science et de la raison, de croire qu'un objet vu, craint ou désiré par la mère, puisse venir, pour ainsi dire, se peindre sur le corps de l'enfant qu'elle porte dans son sein; et la saine physiologie ne peut voir dans cette ancienne croyance qu'un préjugé aussi absurde, et quelquefois aussi dangereux qu'il est ancien."

Vrolik, another well-known teratologist, was more clearly an unbeliever than were the Saint-Hilaires, for he admitted nothing further than that a nutritive disturbance in the mother following a severe shock might lead to a defective development of the fœtus. Förster (201) enumerated eight arguments against the impression theory, including the statement that most malformations develop in the first month, nay, even in the first week of pregnancy, and therefore at a time when the mother commonly does not know that she is pregnant. He also noted that impressions were common while monstrosities were rare, that there was no direct nervous communication between mother and fœtus, and that one twin might be normal and the other malformed. Wonderful stories impressed Förster not at all: "die Literatur ist voll von solchen Fällen, noch mehr aber die Köpfe der Hebammen und alten Weiber weiblichen und männlichen Geschlechtes."

Of the more recent teratologists nearly all have treated the subject of the influence of the maternal imagination as a silly fable; and in the works of Ahlfeld and Hirst and Piersol there is no reference to it, whilst in those of Taruffi, Guinard, and Blanc it is simply considered from a historical standpoint. E. Martin (259), alone, has argued in favour of a modified form of the old belief. He has stated that imagination plays an undoubted part in the procreation of monstrous forms; but he has also insisted that this part is a mechanical one,—that through the nervous system the uterus is thrown into contraction, and thus undue pressure is brought to bear on the embryo. The occasional occurrence of fœtal malformations which resemble the objects causing the maternal nervous disturbance is purely coincidental. Martin seems also to regard the mother's mental state during pregnancy as in some degree modified so as to be more susceptible to impressions.

Alongside of this almost total abandonment of the imagination theory by the teratologists of the nineteenth century, we have to place the extraordinary rejuvenation of the ancient doctrine among the leaders of the medical profession in the United States of America. Between 1839 (the year in which the report of the "Snake-man," Robert H. Copeland, whose mother, when pregnant, had been struck by a rattlesnake, appeared) and the present time papers dealing with maternal impressions, to the number of 143, have been published in American journals. Not only have the contributions been many, but they have also, with few exceptions, been favourable to the imagination theory. Further, amongst those who have most warmly supported the old doctrine were such acute thinkers and weighty authorities as Fordyce Barker (294), Samuel C. Busey (295), and William Goodell (216). Fordyce Barker thought "that the weight of authority must be conceded to be in favour of the doctrine that maternal impressions may affect the development, form, and character of the fœtus," and even went so far as to believe that "these causes may act effectively on the ovules before fecundation," alleging in proof the famous "Dundreary Case." Barker also included telegony, or the influence of a previous sire, in the sphere of maternal impressions, a question with which J. Brunton Blaikie has recently dealt (*Teratologia*, ii. 170, 1895). Goodell was, "to a certain extent," converted from a sceptic into a believer by a case of pre-natal circumcision which occurred in his own practice.

It must not, however, be thought that the theory of maternal impressions was unanimously accepted by the profession in the States. On the contrary, J. G. Fisher (213) wrote at length against the popular opinion, but did not add any novel arguments; and Dugas (202), Norman Bridge (223), and Conant (199) were all strong in their opposition. Still, it is evident that at the present time the theory is held strongly by a great many medical men of note on the other side of the Atlantic; for Hubert Work (369), writing as recently as October 1894, was able to report that out of thirteen physicians (including Penrose, Goodell, Matthew D. Mann, Hatfield, Cooke Hirst, W. A. Edwards, and A. T. King) whose opinion he asked, only one (Hatfield) was emphatic in his disbelief of the statement that "pronounced impressions made upon the mind of a pregnant woman predispose to bodily defects and birth-marks in the child."

The trend of opinion in America is also learned from the study of Dabney's contribution (317) to Keating's *Cyclopædia of the Diseases of Children*, and Edward P. Davis' to Norris' *Text-book of Obstetrics* (p. 213, 1896). Finally, to quote from popular literature, Oliver Wendell Holmes had not a little to say about the result of an "impression" in his fascinating novel *Elsie Venner*. This is by no means the only instance of the belief entering into the fiction of past and present times; for allusions to it are found in Shakespeare's *Merchant of Venice* (Act I., Sc. 3), Scott's *Fortunes of Nigel*, and Sterne's *Tristram Shandy*, while from a casual survey of modern literature I have noted references thereto in Blackmore's *Lorna Doone*, in Henty's *Rujub the Juggler*, in Merriman's *From one Generation to another*, in Egerton's *Keynotes*, and in Cobban's *Red Sultan*.

Whilst the teratologists of this century have practically abandoned the imagination theory, and whilst American writers have in large degree resuscitated the doctrine, surgeons, obstetricians, physiologists, and dermatologists in Europe have held very various opinions thereupon. In Germany, for instance, in the first half of the century there were many who wrote on the power of maternal impressions, among whom were Harting (88), Merle (92), Klein (99), Gittermann (103), Hirsch (104), Wesener (105), Schneider (108, 115, 118), Keyler (120), Braun (123), Späth (125), Kœhler (135), Pauli (136), Rubner (137), Solbrig (143), Droste (153), Hoffmann (154), Straube (157), and Leopold (162). All did not support the old belief; but many did so, and some even went to ridiculous lengths, such as to affirm that the infant's feet were deformed by the mother wearing tight shoes in her pregnancy (108), and to say that the sight by a woman of a one-armed man at the eight month of her pregnancy could cause the birth of a fœtus with one arm wanting. Others, such as Jörg (96) and Meissner (109) argued against the theory, the latter bringing forward some strong clinical evidence. J. Müller (139), the physiologist, also, was a strong opponent of the theory; but Burdach (128), another physiologist, supported it, and thought that the relation between mother and fœtus was an occult one, like animal magnetism. In the second half of this century a comparatively small number of German writers have specially written on the subject (including Brach (164), Wagner (166), Ritter (168), van Praag (170), Tassius (172), Willige (175), Adler (176), Santlus (182), Heidelberg (184), Upmann (189), Clemens (190), Roth (288), Wolff (348), Preuss (356), and the text-book writers); but save in the period 1850 to 1860 the general feeling has been strongly opposed to the ancient doctrine.

In France and Belgium the general trend of opinion during the last hundred years has been much the same as in Germany. Amongst the special writers on the subject must be named Desgranges (84), Martin (85), Clarae-Faget (91), Girard (98), Levêque-Lasource (100), Demangeon (114), Bérard (121), Burggraeve (141), Steinbrenner (144), Guislain (146), Schoenfeld (147), Pigeolet (152), van Camp (159), Bayard (163), Turck (177), Schrevens (217), Liebrecht (232), Loin (255), Liégey (258), Mijnlieff (333), Delassus (337), and Variot (346). Burggraeve (141) attempted to give a more scientific aspect to the old theory by combining it with the known facts of embryology: he related how a woman at the third month of pregnancy saw a pig with its throat cut, and feared that her infant might be affected; the child showed a cleft in the throat which the author regarded as due to the want of union of the branchial arches which were separate at the time of the impression. Guislain (146) reported (amongst others) a curious case of aural deformity following a "longing," and Bourgeois (195) concluded that "les impressions profondes ou vivaces de l'imagination occasionnent quelquefois chez l'enfant des vices de conformation." In 1876 Liebrecht (232) wrote in support of the theory of impressions; and as recently as 1891

Delassus (237) related two cases (one of hare-lip and one of anencephaly) which seemed to have confirmed him in his belief in the old doctrine.

In Italy, also, the power of the imagination of the mother in teratogenesis has found defenders and opponents and critics, to some of whom Taruffi (*Storia della Teratologia*, i. p. 242) refers. For instance, Monteggia (87) put on record a case of intra-uterine amputation alleged to be due to the mother seeing many cases of amputations; Barbieri argued against the belief, and suggested more natural explanations of fœtal states, and Vannoni (162*a*) hinted that possibly a predisposing condition was needed in mother and fœtus before an impression could become efficient. Fenoglio (106), Viparelli (149), and others contributed further to the literature of the subject in Italy. In Poland, Neugebauer was a believer, as Drzewiecki (339) tells us.

With regard to Great Britain, it would seem that the influence of Blondel (37), Munro (39), and Smellie (57) has been largely effective in preventing a wide acceptance of the imagination theory in the ranks of the profession. Alleged cases have from time to time appeared in the *Lancet* (*e.g.*, those reported by Hoare (116), Canton (129), Rankin (130), Wansbrough (132), O'Shea (155), Dunn (156), Beale (192 and 198), Child (206), Daly (209), and others); the *British Medical Journal* (*e.g.*, those by Curran (203), Houghton (204), Graham (207), Thompson (222), Clapperton (224), Huntley (225), R. J. Lee (226), Sandham (228), Jenkyns (372), Jones (373), and others); the *Medical Times*, the *Dublin Medical Press* (*e.g.*, 140), and the *Glasgow Medical Journal* (*e.g.*, 353); but although these contributions have been fairly numerous, the feeling amongst obstetrical teachers has been inimical to the notion of maternal influence. Ryan (119), for instance, was strongly opposed to it, and so have been many others. Montgomery (182*a*) was an exception, for he wrote, "I cannot help thinking it quite consistent with reason and the present state of our knowledge to believe that a very powerful impression on the mother's mind or nervous system may injuriously affect the fœtus, still lodged in her womb, actually a part of herself, and deriving its supply of life from her blood; and this, the more especially, as many instances have been witnessed in which the child *after birth* has suffered seriously by being suckled by a woman labouring under some strong mental impression."

The matter was brought up by myself on two occasions (335, 349) at meetings of the Edinburgh Obstetrical Society, with the general result that no decisive proof for or against was forthcoming, and that the question was still to be regarded as *sub judice*. Barnes is content to leave the problem unsolved; but Ashburton Thompson (248) would seem to have been a believer. Much more might be said concerning British contributions to this vexed question, but it must suffice to note that Everard Home (110) was a supporter of the doctrine, and that Arthur Mitchell (290) may be said to have demonstrated the potency of mental emotion in the causation of idiocy.

Such is, in outline, the history of this teratogenetic theory, extraordinary alike whether its truth be affirmed or denied; wonderful alike in its wide extension in space and time, and its firm hold upon the minds of both profession and laity. To those who wish to see it dead it is most disappointingly vital, to those who wish to demonstrate its truth most strikingly destitute of scientific proof. In its support is a marvellous mass of evidence of the *post hoc ergo propter hoc* kind; arrayed against it are the scientific theories of biology which have been gradually and laboriously built up by the savants of this and of other ages.

From the standpoint of the student of antenatal pathology the theory of maternal impressions must be regarded as a great misfortune. Many instructive cases of fœtal disease and deformity have been practically lost to science through the absorption of the observer's mind in ideas of the mental process in the mother which could have caused the state of her infant, and through his desire to trace in the morbid fœtal condition a resemblance, often far-fetched indeed, to some animal, vegetable, or mineral. In this sense the theory has been the grave in which a great deal of fœtal pathology has been buried; for instead of a case being entitled one of anencephaly, or of fœtal ichthyosis, or of hirsuties or hairy nævus, it has been simply labelled "a curious instance of maternal impressions," "a striking case of the influence of the mother's mind on the fœtus," etc. Further, the material thus hidden away is in most cases permanently lost; for a reference to the report usually gives us no anatomical or pathological details to enable us to identify the malady or the malformation, but simply tells us that the infant had a head like a cat or a rat, or was hairy like a bear, or had scales like an alligator or a snake.

The theory has had a maleficent effect on the progress of the study of antenatal pathology. Of that there can be no doubt. But the question whether there is or is not any truth in the theory still remains to be settled. In the historical sketch which has been given I have indicated most of the arguments which the supporters and the opponents of the doctrine have adduced; these I need not again refer to, but may simply state briefly what I regard as the correct view to take of "maternal impressions." In order to centralize our knowledge on the subject, I may ask myself two questions:—(1.) Does a definite impression upon a pregnant woman's mind often or ever cause a defect in the fœtus closely resembling the thing producing the impression? and (2.) Has the state of the mother's mind during gestation any effect upon her unborn infant's development?

The first question I answer in the negative, and the second affirmatively. Since I wrote upon the subject some years ago I have very carefully examined the evidence upon which several alleged cases have been founded, I have had opportunities of attending confinements in which all the elements regarded as suitable for the production of the results of an impression were present and in which the children were free from anything at all resembling the impression, and I have very fully acquainted myself with the voluminous literature of the subject. The conclusion drawn is that the cases which have been advanced to prove the potency of maternal impressions have been accidental coincidences, and not the effects of the alleged causes. Their great number may be adduced to prove that the doctrine must contain an element of truth; but it has to be pointed out that, numerous as they are, the cases in which nothing of the kind happened are vastly more numerous. Further, although I do not wish to lay too much stress upon this, no adequate scientific explanation of the *modus operandi* of such impressions has ever been advanced. Whilst I am willing to admit that the mother's nervous system is often in a peculiar state during pregnancy, and whilst I fully recognise the possibility of the mother affecting the fœtus with a disease, and *vice versa*, I regard it as impossible for (*e.g.*) the sight of a mutilated individual to be so transmitted mentally by the mother as to cause a fœtal amputation resulting in a similar deformity in utero. At the same time, I must concede that perhaps one case in a hundred presents phenomena which it is very difficult entirely to explain away. One such case I have myself met with; but it seemed to me reasonable enough to think that a more rational explanation of it existed, although as yet unknown, than the influence of the mother's imagination.

With regard to the second question, I think there can be no doubt that prolonged or strongly-marked mental states of the mother may affect the development of the fœtus in her uterus. That such can produce abortion none, I fancy, will deny; and that short of producing miscarriage they can also lead, through vascular and nutritive disturbances, to irregularities in embryogenesis is eminently probable. In Paris, it is said, the children that were conceived during the disastrous siege of the Franco-Prussian war can be recognised by bodily and mental stigmata so marked that they have been dubbed "enfants du siège." In reference to this phenomenon Féré (369*a*) says "les enfants qui ont été conçus et portés à certaines époques troublées offrent en grand nombre des troubles de nutrition, des malformations et en particulier des altérations des fonctions du système nerveux." Of course it must be admitted that the poor or bad food and the defective hygiene of such seasons were also operative, still it is reasonable to believe that in part the results were due to the continued and severe terror and constant anxiety incident to a time of siege in modern warfare. In the same way the results are not always teratological, but may, as Féré has also shown (377), be of the nature of sterility, abortion, premature labour, mortinatality, congenital debility, and retarded growth and development. There are then many causes at work and many resulting phenomena; but amongst the former it is fair to reckon mental emotion, and among the latter monstrosities. To this extent I believe in the old doctrine of maternal impressions; this is, I think, the one grain of truth in an immense mass of fiction and accidental coincidence. The conclusion is also in accordance with the results of experimental teratogeny.

Note.—In order that more light may be thrown upon this matter, cases in which mental impressions in pregnancy were followed by the birth of infants *in any way abnormal* ought to be put on record. For instance, a woman, pregnant four or five weeks, was greatly impressed by the sight of a child with a hare-lip; at the full time all her friends came together to see an infant born similarly affected, but the offspring showed not a hare-lip but a large nævus on the neck (Féré). It is by no means certain that this was an instance of cause and effect, but such cases are far worthier of record than are those in which an impression is said to reproduce itself, as regards form and situation, on the infant's body.

[The bibliography will be found appended to this paper as it appears in the *Edinburgh Obstetrical Society Transactions*, vol. xxi.]

IV.—CLINICAL LECTURE ON ANTERIOR POLIOMYELITIS AND ALCOHOLIC NEURITIS.

By ALEXANDER JAMES, M.D.

IN a large Hospital like this, examples of the more chronic and long-enduring diseases of the nervous system are to be met with at all periods of the year, but now and again we find that at certain times we have in our wards groups of patients affected with nervous diseases more acute in their onset and course. A period of this kind seems just to be occurring, for during the past two months, April and May, we have admitted into Ward 30 a good many examples of these. At present we have five examples of the so-called multiple neuritis, rheumatic and alcoholic, and one of acute anterior poliomyelitis in a child. Diseases of all kinds often come in runs, and the cause for this we often cannot explain; but in this connexion it is interesting to note that, as shown by the Registrar-General's Returns, nervous diseases reach their maximum as causes of death in the months of April and May. Further, Sinkler, Gowers, and others have called attention to the fact that anterior poliomyelitis occurs much more frequently in summer than in winter. This consideration enables us, therefore, to understand how we have had so many of such cases in our wards lately, but, of course, it does not tell us the why.

I propose now to go over with you, in the first place, in detail the case of acute anterior poliomyelitis, and then we shall be able more rapidly to run over the phenomena presented by the other cases.

Joseph S., aged 9, a schoolboy, of Hebrew race, and living in Edinburgh, was admitted to Ward 30, April 25, 1896. His complaint is stated as having been inability to stand.

History.—His family history is fairly good. He is sixth in a family of ten, and with the exception of one child who died in infancy, his brothers and sisters are well. His home surroundings are good. When an infant he had measles and bronchitis, and his mother states that he was much troubled during dentition. His mother also states that he has never taken his food as well as her other children, and that he has always preferred tea to porridge.

Present Illness.—This seems to have begun some eight weeks ago. After symptoms which looked like a severe cold, he came home from school one day complaining of sore legs. He went to bed, and next morning it was discovered that he could only creep about. This loss of power in his legs got rapidly worse, so that in the course of a few days he could not move his lower extremities at all, and complained bitterly of pains in them. Then during the next fortnight he had what his mother calls fits. These occurred daily, and began by the patient crying. This was followed by shiverings, and by the muscles of his legs and arms becoming rigid. After lasting for some hours, these fits, which seem to have resembled the phenomena of strychnine poisoning, passed off, and from what we can gather, they were not accompanied by any loss of consciousness. After having lasted for about a fortnight, they passed off, and the pains in the limbs being better, the child recovered sufficiently well to be able to slowly crawl about on hands and knees. As he was, however, showing no improvement, he was brought to the Infirmary and admitted as above.

State on Admission.—Patient is a delicate-looking child, and he can neither stand nor walk. His temperature on admission was normal, and his pulse about 80 per minute.

NERVOUS SYSTEM: *Sensory Symptoms.*—He has now no subjective sensations. There is no muscular tenderness, and his sensibility to touch, pain, and temperature is normal. With the exception of some myopia, his special senses are normal.

Motor Symptoms.—Voluntary motor power in the lower limbs is very greatly impaired. All the muscles are affected, but the loss of power is specially great in the extensors of the foot, of the leg, and of the thigh. Thus lying on his back in bed he can draw up the legs with some difficulty, but he cannot push them down. Seated on the edge of the bed with his legs hanging down, he can flex but cannot extend them. Lying on his back, or held up by the armpits, his power of abducting the legs is greater than that of adduction. In all respects the right leg is rather the more affected of the two.

Reflexes.—The plantar reflex is very slightly marked, but the cremasteric, abdominal, and epigastric are all well marked. The deep reflexes, the knee and ankle jerks, are entirely absent. The visceral reflexes, bladder and rectum, are unaffected.

Trophic Condition.—Both lower limbs are very thin, the muscles feel soft and flabby, and the feet are cold to the touch. There is a slight tendency to drop-foot, owing to contracture of the calf muscles. As regards electric irritability, we find that the quadriceps of the thigh and the extensors in front of the leg fail to respond to the faradic current. They respond, however, to a fairly strong galvanic current, and the strength of the contraction with K. Cl. and An. Cl. seems about equal. The gastrocnemii and hamstring muscles respond more readily to the galvanic current, and show, but to a very slight extent only, some irritability to the faradic current.

In this condition, then, we admitted our patient. Recognising that it was a case of acute anterior poliomyelitis, and that the acute stage was over, we did our best at once to improve his general condition, and to improve the condition of his affected muscles. We looked to his dietary, and for the muscles we prescribed massage, galvanic electricity, and the administration of strychnine internally. So far our treatment has done good. The boy has now much more power in his legs than he used to have. With a patient on either side supporting him (he is too small for our go-cart), he can walk along fairly well, and he can even, after a little careful balancing, stand for a few seconds without support. A feature in the course of his case is, however, noteworthy. This is that for a few days (May 21 to 25) he was rather feverish and ill, apparently as the result of excitement caused by two patients having died in the ward. During this time he complained of some pains in the legs, so that the daily massage, etc., had to be interrupted, and for some days afterwards it was noticed that his legs were distinctly more powerless and flabby. He soon began to improve again, but we could not but look upon this illness as a slight return of the myelitis.

And now let us consider some of the phenomena of acute anterior poliomyelitis. The pathological cause of it all is supposed to be, as you know, an inflammation of the large cells of the anterior cornu of the cord, as the result of which their function is more or less completely, and often permanently impaired. In this way we find that the transmission downwards of voluntary motor impulses from the brain to the muscles is prevented, and that the transmission through to the motor cells of the stimuli which ordinarily cause reflex action is rendered impossible. Thus, without any interference with the transmission up to the brain of sensory impulses, we find more or less complete motor paralysis with more or less complete absence of reflexes. But the trophic condition is also important. These large cells of the anterior cornu radiate out to the muscles along their motor nerve influences, which enable those muscles to nourish themselves and build up their tissues. Hence when these cells are rendered functionally unfit, degenerative changes follow in nerve and muscle. These changes are manifested in nerve by a rapid disappearance of galvanic and faradic irritability, and in muscle by rapid wasting and by the disappearance of faradic irritability, with persistence for a time, and, indeed, increase of galvanic irritability.

Further, when in such cases the destruction in the anterior cornua has been too great to be recovered from, we find more or less permanent interference with growth in the affected parts; the muscles, bones, and bloodvessels remain small, and whilst the child in other respects goes on growing, and is healthy enough, a pigmy limb or pigmy limbs remain to testify the nature of his disease.

That there should not be at any stage bed-sores or other trophic disturbances in the skin in anterior poliomyelitis we can easily understand when we remember that the nutritive condition of the skin and sensory nerves is dependent on the integrity of trophic centres unaffected in this disease. These are to be found in all probability in the ganglia of the posterior nerve roots and the posterior grey matter of the cord.

In connexion with this trophic influence generally, and with the trophic influence of the large cells of the anterior cornua specially, let me now point out to you a consideration which I think we would do well always to bear in mind. This is, that the trophic influence and the functional influence of nerves and nerve centres are not in any way different in kind, but are simply variations, probably in strength or degree, of the same energy. I say this because I think there is some tendency to regard them as being in a way different. Thus you will remember from your physiology that for instance as regards the heart, the vagus nerve, which on stimulation slows it, is supposed to do so because it contains fibres which promote anabolism in that organ, whilst the sympathetic, which on stimulation accelerates it, is supposed to do so because it contains fibres which promote catabolism. So also with glands; it would seem as if certain nerve fibres function so as to produce the specific constituents (trophic), whilst other fibres function so as to wash these and other matters into the ducts (secretory). In these instances, then, it would seem as if the building up or anabolic and breaking down or catabolic function were governed by different nerves; but I think we should never forget that, as was well put by George Henry Lewes many years ago, nerve tissue has only one function, neurility, and that this is all we need suppose it to possess. The illustration of the identity of the trophic and functional influence of nerves which I am in the habit of making use of is the effect of the sun's rays on vegetable growth. Take, for example, a leaf. The effect of those rays falling upon it in the ordinary diffuse way is to enable that leaf to build up its tissues,—that is to say, the effect is an anabolic one. But suppose that by means of a lens we concentrate those rays upon it, the effect is to burn it, to make its tissues break down, —that is to say, to produce catabolism. So with the energy which the large cells of the anterior cornua radiate out to the muscles; when in moderate amount, as when the muscles are at rest, they induce anabolism; when in increased amount, so as to make the muscles contract, they induce catabolism. In either case, however, the energy is essentially the same, so that we can quite easily understand how with their destruction we find occurring at the same time muscle paralysis, degeneration, and atrophy.

But, now, what is the cause of this inflammation and, perhaps, more or less complete destruction of these large cornual cells? Probably it is some morbid blood state, some poison which, circulating in the blood, produces first the general disturbance, and secondly the inflammatory changes in the cord,—just as, for example, the pneumococcus produces first the fever, and secondly the inflammation of the lungs. In this way the common symptoms of this disease, the fever, malaise, convulsions, muscular rigidity, muscular pain, paralysis, and atrophy, can all be explained. Then, according to the amount of injury to or destruction of those cells, the muscular and nutritive power are restored, or, as is unfortunately more frequently the case, are not restored, so that a paralyzed and more or less atrophied condition of parts permanently results.

As regards the prognosis in the case of this boy, I am inclined to take a more favourable view than I usually am forced to do. I believe that he will, at any rate, be in time able to walk, but beyond this I would defer my prognosis for six months or a year.

I now pass to the consideration of the cases of peripheral neuritis, but, before going over these with you, let me first draw your attention to two generalities. The first of these concerns the symptomatology, and is that as in this disease the lesion involves the peripheral nerves, we shall expect for symptoms to find not only, as in anterior poliomyelitis, muscle paresis or paralysis, muscle tenderness, muscle atrophy, and absent reflexes, but also sensory symptoms, as paræsthesia and anæsthesia, and also trophic changes in the skin. The second concerns the pathological changes, and is that whilst in all cases of neuritis the main pathological feature is a more or less complete interruption of continuity in the essential part of the nerve fibre—*i.e.*, the axis-cylinder—as the result of inflammatory and degenerative changes, yet that these changes may be caused by one or other of two kinds of inflammatory actions, an "adventitial" or a "parenchymatous." In the "adventitial" form the fibres are affected secondarily to an inflammation of the connective tissue around and between them; in the "parenchymatous" the inflammatory and degenerative processes begin in the nerve fibre itself, the connective tissue around being involved secondarily. Although it is often difficult and sometimes impossible to state in any given case to which of these two forms a neuritis is to be ascribed, yet it is evident that a localized or unsymmetrical neuritis—a Bell's paralysis or a paralysis of a cranial nerve—is more likely to be adventitial, whilst a general or symmetrical neuritis—alcoholic, diabetic, metallic, etc.—is more likely to be parenchymatous. On this subject, however, more will be said after consideration of the cases. I shall now proceed to this, and out of the five patients whom we have at present in the ward suffering from peripheral neuritis, I shall select two for detailed discussion with you—the two which appear to me to be the most characteristic.

The first is that of Charles T., æt. 47, a stereotyper, born in and residing in Edinburgh, who was admitted to Ward 30 on June 6, 1896, complaining of "pains and weakness in the legs."

His family history shows a distinct tendency to heart trouble, but his conditions at home and at work have always been favourable. He has, however, for many years been a very heavy drinker, his wife tells us, not in occasional bouts, but constantly tippling. Up till Christmas last he has been, however, fit for his work. Since then his habits and increasing weakness have prevented this. He has had no previous illness nor accidents.

Present Illness.—Patient tells us that some time before last Christmas he noticed that at nights in bed he began to be much troubled by cramps in the calf muscles, and also that his knees seemed to be weak, for he felt difficulty in walking down stairs. This led to his losing his work, and also to some consequent diminution in the amount of alcohol consumed daily, yet his illness seems to have gone on progressing. In March last he noticed a feeling of tingling in the feet, which gradually got worse, till he says he felt at times as if knives were being driven into them. Then a similar but less severe tingling began in the backs of the hands. Failure of appetite and progressive weakness led him to apply to the Infirmary, and he was admitted to Ward 30 as above.

State on Admission.—Patient appears a stout and well-developed man. Height, 5 ft. 10½ in. Weight, 12 stone. When stripped, however, we noticed that his arms and legs were much smaller than we should have expected, and he tells us that they are very much thinner than they were. His temperature is normal.

Alimentary System.—His tongue is flabby, furred, and tremulous on movement; he has thirst, and his appetite is very poor, so that for weeks he has taken no solid food—only such things as milk, beef-tea, and switched eggs. His bowels are regular, and on examination his liver appears of natural size.

Hæmopoietic System normal, except that the spleen seems to be slightly large.

Circulatory System.—He gives a history of occasional palpitation and slight cardiac pain; and on examination we find, with no marked enlargement of any part of the heart, that at the apex the first sound is replaced by a blowing murmur, and that at the pulmonary area the second sound is accentuated. The pulse is somewhat increased in frequency, 104 per minute, slightly irregular in time and force, and of rather small volume. The arterial walls are not thickened to any marked degree.

The *Respiratory System* is normal; and as to the *Urinary System*, all that need be said is, that the urine is slightly above the normal as regards quantity, and of rather low specific gravity.

NERVOUS SYSTEM: *Sensory Functions.*—He complains of tingling in the hands and feet, in the feet amounting at times to sharp pains. He has not had these pains in the hands, but he states that when he stretches out his left arm he feels a sharp pain in the left hand shooting along the radial side of the index finger. Sensibility to touch, pain, and temperature appears to be unaltered in the hands, but is somewhat impaired in both feet. There is, however, no muscular tenderness anywhere; on gripping the muscles tightly no pain is complained of.

The special senses are practically normal.

Motor Functions.—Voluntary motor power in the arms seems fairly good, but we find that with the patient lying on his back he cannot draw up or push down his legs with the force which we should expect him to possess. We find also a similar slight impairment of power in flexing and extending the feet.

Reflexes.—Plantar reflex is exaggerated, the cremasteric is absent, and the abdominal and epigastric are distinctly marked. The knee jerk is absent, as also is the ankle jerk; but on jerking up the foot a slight ankle clonus can be elicited.

The organic reflexes are normal.

Coördination power is good. He can stand steadily with his eyes shut and his feet close together. His sense of locality is also good; with his eyes closed he can bring his two index fingers together, and he can touch an ankle or a knee with the toe of the other limb quite correctly.

The muscles are flabby and thin, but there is no reaction of degeneration.

His cerebral and mental functions appear practically normal; he has the appearance of a fat, rather stupid, but good-natured man.

James K., æt. 49, kitchenman, was admitted to Ward 30, June 2, 1896, complaining of pains in the chest, and cough, with pains and weakness and swelling in the feet. He stated that his illness had caused him to give up work two weeks ago.

His family history is very good. He states that he has always been able to get good food, but that for years past he has been in the habit of taking alcohol freely. He has had no illness since childhood, but he had a severe accident to his right foot nineteen years ago. At that time he had also two ribs broken. At his work in the kitchen he is exposed to changes of temperature, and he often has a cough and spit, and suffers now and again from shortness of breath on exertion.

His present illness began, he states, a few weeks ago. He had had extra exposure and heavy lifts, and he noticed then that his cough and shortness of breath were worse, and that his legs were swollen. He tried to continue at work, but finding himself becoming weaker he applied to the Infirmary.

State on Admission.—Patient appears a strong, well-developed man, 5 ft. 6 in. in height, and weighs 10 st. 7 lbs. His temperature is normal.

Alimentary System.—Tongue is somewhat furred, his appetite is fairly good, and there is a slight tendency to diarrhœa. There is, on examination, no abdominal distension or tenderness, and the liver and spleen are of normal size.

Circulatory System.—He states that he is rather easily put out of breath on exertion, and that he has occasional palpitation. On examination, the apex-beat of the heart is found to be just outside the nipple line. There are no murmurs, but the pulmonary second sound is accentuated. Pulse is 70 per minute, regular in time and force, but rather weak. The arterial walls are slightly thickened.

Respiratory System.—Patient has a cough with frothy spit, and on examination the respiratory murmur is found to be somewhat harsh, and a few rhonchi can be heard posteriorly.

His legs are slightly œdematous, but the urine is normal in quantity, sp. gr. 1022, and contains no albumin.

NERVOUS SYSTEM: *Sensory Functions.*—Patient complains of pains in legs and arms, and a feeling of numbness in the feet, specially the right foot. These pains are specially severe in the calves of the legs when he gets out of bed. There is also great muscular tenderness; he winces at once if the muscles of the legs or arms are squeezed. There is some anæsthesia in the skin of the right foot and leg; touching and pricking are not felt so well, but the sensibility to temperature seems unimpaired.

The special senses are normal.

Motor Functions.—Voluntary motor power is distinctly impaired both in legs and arms.

Reflexes.—The plantar reflexes are absent, but the cremasteric, abdominal, and epigastric are all distinctly marked. The knee jerks are exaggerated, and the ankle jerks and ankle clonus are present.

The muscles do not seem to be much wasted, and they respond readily enough to the faradic current. There is œdema of both legs, the skin sweats rather profusely, and there are several small and very superficial ulcers on the skin of the legs and feet.

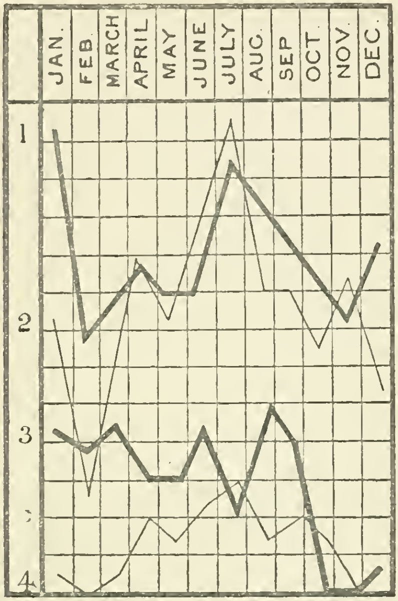
His coördination is good, and his cerebral functions show no marked impairment.

These, then, are the cases, and now I wish to point out to you certain features as regards etiology, symptoms, and pathology which I believe they illustrate.

As regards etiology, they illustrate, in the first place, the fact that alcoholic neuritis occurs usually rather as a symptom or complication than as a disease of itself. In both of these patients it is evident that the alcohol had been affecting them injuriously long before the onset of the neuritis symptoms. In the first patient it had doubtless materially helped to bring on his heart valvular lesion, and in the second his bronchitis and feeble heart. And so again and again we find that in stomach, liver, or kidney lesions into the causation of which alcohol has entered, the neuritis symptoms are apt to show themselves as an addition to the other evil effects of the stimulus, just as they show themselves occasionally in diabetes or tubercular phthisis as a symptom additional to those of the original disease. Further, we know that in alcoholic individuals, just as delirium tremens is apt to supervene as the result of the onset of acute diseases like pneumonia or typhoid fever, or as the result of accident or exposure, so also is neuritis. It is only, indeed, when all the other systems and organs are perfectly sound that alcoholic neuritis is to be dignified by being regarded as a special disease, but those cases are comparatively few in number. They occur most frequently in women, the reasons for this being that the social surroundings of women, whilst debarring them from the periodic profuse ingestions which lead to attacks of acute alcoholism, protect them at the same time from exposure and from the consequent occurrence of other diseases with which the slighter and less typical forms of neuritis would be likely to appear as complications.

The second etiological point is that alcoholic neuritis seems to occur most frequently during the summer months of the year. I have previously referred to the extra prevalence of nervous disease of all kinds during the summer months, but I wish now to direct attention to nervous diseases the result of alcohol specially. To do this let me ask attention to the Chart on following page, which is constructed from data collected by Dr Gillespie, and which is slightly altered from one of the charts which he gives in an interesting paper in the *Edin. Med. Jour.*, Sept. 1895. This Chart shows for five consecutive years (1889-1894)—by Curve 1, the total monthly admissions of alcoholic cases of all kinds to the Royal Infirmary; by Curve 2, the total monthly admissions of patients with delirium tremens; by Curve 3, the total monthly admissions of male cases of alcoholic neuritis; and by Curve 4, the total monthly admissions of female cases of alcoholic neuritis.

It will be seen that with the first three there are shown to a certain extent rises in January and during the summer months,—rises which might reasonably enough be ascribed, as Dr Gillespie has done, to the New Year festivity and to the summer Trades Holidays and trips. But it is most interesting to notice that the course of female alcoholic neuritis is markedly higher during the summer weather; because, as has above been referred to, it is in females that the disease occurs most typically. We are entitled, I believe, to interpret this as indicating that although the consumption of alcohol may be greater at some periods of the year than at others, yet that the vulnerability of the nervous system to its effects is greatest during the summer months.



Next let us say a little about the symptomatology. In both of our cases, but varying somewhat as regards degree, were present the sensory and motor abnormalities characteristic of neuritis, and in the second case the trophic changes in muscle and skin were distinctly noticeable. There was muscular tenderness, wasting, degenerative reaction, and an œdematous and ulcerative condition of the skin. As regards reflexes, it is obvious that theoretically they should either be impaired or absent altogether in an affection which is considered to have for its pathological cause an impaired structural and functional condition of nerve fibres. But practically we find that whilst the superficial ones are apt to vary much in different cases, the deep ones are completely lost only in the so-called typical cases. Thus in the second patient the ankle and knee jerks were not only not lost, but were markedly increased when he came into the ward, and now when he is recovering they are still distinctly present. This occasional marked existence of the reflexes at the commencement of alcoholic neuritis, and their occasional persistence also during the entire course of the malady, is referred to by Gowers and others. The ordinary explanation of these phenomena is that in the early stages there is increased nerve irritability and hence increased jerks, and that the occasional escape of some of the fibres on which the reflex depends will account for the continuance of the jerks all through the disease in a certain proportion of cases. But, and this is a very important point, the symptomatology of alcoholic neuritis shows variations still more marked than these. Although it is most common to find, as in those two patients, a combination of sensory and motor disturbances, yet the predominance of certain sets of symptoms is often so obvious that three types of alcoholic neuritis have been described—1, *motor*, in which there is mainly loss of power, the motor nerves being specially implicated; 2, *sensory*, in which there are chiefly paræsthesiæ and anæsthesiæ, the disease mainly involving the sensory nerves; and 3, *ataxic*, in which incoördination is the main feature, and in which it is supposed that the inflammation affects specially the afferent muscle nerves.

Now, all these differences as regards symptoms cannot but be regarded, I think, as indicating another very important consideration. This is, that although we speak of the disease as being a peripheral neuritis, we must always bear in mind that with nerve structures pathological changes showing themselves at the periphery may be due to morbid conditions affecting the cortex, and *vice versa.* We must further bear in mind that the nerve cells in the cerebral or cerebellar cortex, the nerve fibres connected with these in encephalon and cord, the nerve cells of the grey matter of the cord, the fibres of the cerebro-spinal nerves, and, finally, the peripheral end-organs in muscle and skin, etc., are all, as it were, living links in a living chain; and although the nutrient or trophic power may be greater or more important in some links than in others, yet that in no one can vitality be impaired without affecting more or less injuriously all the others.

In alcoholic individuals the alcohol circulating in the blood must be carried to all parts of the nervous system, and must injuriously affect all parts. As to the conditions, however, which lead to its producing such differences as regards symptoms in these so-called neuritic cases, we are as yet in the dark. That some determining conditions do exist, however, we may be assured; probably they act, as Wilks has suggested, similarly to the individual idiosyncrasy "which makes one man get drunk in the head and another in the legs." All this, therefore, tends to make us realize that although the pathologist has been able in this disease to demonstrate changes in nerve fibres only or mainly, yet that the true cause may in time be recognised as operating rather on nerve cells in brain, cord, or ganglia.

The prognosis in both of these cases is very good. The extent of the paralysis and the degree to which sensibility is affected is comparatively slight, and the general condition is in both patients satisfactory. There is absolutely no indication of any implication of the respiratory mechanism,—the chest muscles act normally, and the well-marked rise and fall of epigastric and hypochondriac regions in respiration shows that the diaphragm is working well. Restoration to health will, however, be slow, as it always is in such cases; it will be a question of months.

As regards treatment, we have, in the first place, stopped the alcohol, and our patients are having rest in bed and good nourishing diet. For the first patient, in whom there has never been any marked muscular tenderness, we prescribed from the beginning massage, electricity, and passive movements. In the case of the other man we avoided these for a time, as he had great muscular tenderness, — a condition which such treatment is certain to aggravate. When in addition to tenderness there is muscle or nerve pain, wrapping the limb in wadding and fomentations are also useful.

Any means which promote the action of the skin are of benefit, probably by helping to eliminate the poison. Warm-water baths daily have been recommended for this purpose. In several of our cases we have used hot-air baths, and lately the Tallerman-Sheffield superheated air apparatus, with distinct advantage. With all such treatment it must always be borne in mind that there is a risk of blistering the skin, owing to its lowered trophic condition,—a risk which is all the greater by the patient's sensibility being often blunted.

As regards drugs, we usually give potass. iodide in the earlier stages, and later on such drugs as strychnine, iron, arsenic, and cod oil.

V.—OBSERVATIONS ON MENTAL AFFECTIONS IN CHILDREN, AND ALLIED NEUROSES.

By William W. Ireland, M.D. Edin., Mavisbush House, Polton.

(*Continued from page* 208.)

On Insanity in Children.

The following description will illustrate a form of this affection which has proved amenable to treatment:—K. C.; father considerably older than the mother, who was about twenty years of age when K. C. was born. Mother a sensible woman, careful and attentive to her children. K. C. was the second child. The eldest a boy; brothers and sisters all healthy. She had no fits at teething. When five years old she fell ill with fever, delirious, screaming at night; increased heart-beat and bleeding at the nose. After this she was sometimes moody and irritable, and took paroxysms of violent screaming. She was fitful and capricious; appetite poor. She gave up taking milk, refused butchers' meat, and showed a craving for things generally thought indigestible; when in good humour she would eat like the rest. She was taught by a governess up to nearly ten years, and was for her age a good reader, writer, and arithmetician. She also possessed an unusually large store of general information. Her noisy fits became more and more frequent, and her education had to be stopped. On one occasion she commenced a loud wailing at church.

An aunt, who said it was "all temper," took K. C. to her house and tried to subdue her by cold baths and other disciplinary methods. After nine months she was returned to her mother much worse. When K. C. was committed to my care she was eleven years and nine months old, pale, and small of her age. Her head was about the usual size. The pulse was soft and weak. She had a systolic murmur, loudest at the apex, indicating mitral insufficiency. She used to take fits of wailing, which sometimes lasted for hours, till her voice became faint, and the sounds died away through sheer exhaustion. She used to get below a bed and hold on to the footpost, making the whole house to resound with her cries. Sometimes she would bump her head against the wall or floor, but as I noticed that she did not seriously hurt herself, I let her do so without interference, when she soon stopped. These fits of excitement were accompanied by a violent beating of the heart which was audible to one standing near. It could be seen thumping against the walls of the chest. Owing to her agitated movements it was impossible to count the beats, but they were very rapid. This was sometimes accompanied by bleeding at the nose. In mitral insufficiency the pulse is small, the arteries do not receive their full share of blood, and the tendency is towards depression and sadness. When the balance of mental health has been overset, a marked inclination to melancholia has been observed;[1] and Dr M. C. Girandeau has described some cases of mitral stenosis in young men accompanied by hemianæsthesia and hysteria, which seem to indicate a connexion between the two diseases.[2]

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[1] See Mickle, *On Insanity in Relation to Cardiac and Aortic Disease and Phthisis*, p. 29, London, 1888; and Victor Parant, "La Folie chez les Cardiaques," *Annales Médico-Psychologiques*, Mai 1889.

Dr Savage writes: "I have been impressed by observing many cases suffering from mitral disease also being subject to melancholy." See paper on "Cardiac and Vascular Diseases in Insanity," by Dr J. M. Keniston, in the *Journal of Nervous and Mental Disease*, February 1896, New York. In the May number of the same periodical there is a clinical "Report of Three Cases of Insanity of Childhood," by Dr Thomas L. Wells. One of these, a girl eleven years old, had a mitral regurgitation murmur, believed to be congenital. She was self-willed and difficult to manage, refused food, used to laugh without reason, then remained silent for months. Had hallucinations of smell and sight. Recovered under treatment.

[2] "Rétrécissement Mitral et Hystérie chez l'Homme," par M. C. Girandeau, *Archives Générales de Médecine*, Nov. 1890. Girandeau describes four cases of hysteria in young men in whom there was also mitral stenosis. During two years he met with eight cases of mitral stenosis, and three of these were accompanied by hemianæsthesia with or without hysterical attacks. From the association of other abnormalities, the author thinks the cardiac deficiency in these three patients was congenital and related to the hysteria. Taking eighty-four ordinary patients, Girandeau found that in only three of them there were derangements of sensibility.

One evening she made the house so uncomfortable with her loud wailing that I carried her into a cottage within the grounds and put a nurse beside her. She resisted this vigorously; but the idea that she had been put out of the house because she had rendered herself intolerable seemed to make an impression on her mind. I found that the wailing might be stopped by diverting her attention to something new. In time I got more expert at this process, and the effect was sometimes wonderful. When a wailing fit came on I would take her to chase a hen out of the garden, or get her to weed a bit, and once commenced, the action turned her thoughts into a new channel. On one occasion, when she was at her noisiest, we came to a ladder against the high wall, when I said, "Run up that ladder and see what Mr So-and-so is doing. I want to know." The little creature went slowly up the ladder, looked over the wall, and said there was nobody there. She came down the ladder, put her hand in mine, and walked round the garden with me. The paroxysm was over. When an outburst came on after dark it was a more serious matter, as it was difficult to divert her attention. At ordinary times she was gentle and timid, but pettish and easily offended. In a week K. C. had begun to improve. Her health became stronger, and the mental distress passed slowly away, the outbursts recurring now and then, but less noisy and less prolonged. After she had been about fourteen months under my care, I told her mother that she might take her away, as she was now free from any mental derangement; but her mother retained so lively a memory of "her tantrums" that she was afraid to do so, and the girl remained with me another seven months. K. C. herself looked back upon her performances with shame, and was by no means anxious to go back to her brothers and sisters.

During the farther time she was with us she was anxious to be helpful in the house, pleased to run on little errands, and desirous to go on with her education. She acquired or reacquired arithmetic, which seemed to have passed away from her mind. She showed a persistent desire to learn to play on the piano, although she did not appear to have much natural taste for music. She displayed ingenuity in contriving and making ornaments out of the sea shells which she picked up on the shore, and in dressing dolls, and in general she showed that quiet and docile intelligence often seen in girls somewhat weakly in health. After she left us we had several letters and messages, which showed that her recovery continued.

Dr Savage[1] has published the case of a boy, eleven years old, who became affected with hysterical insanity after attending the funeral of his sister, who died of an accident. He pretended that he did not eat nor pass anything, but would steal food and eat it on the sly, and throw away his motions. He used to hide his face and scream for hours together, pretended that he could not walk, drew up his feet, and when forced to stand, rested on the outer malleoli; was able to ride on a pony. He was sent to Bethlem Asylum, where he recovered "under judicious neglect and shower baths."

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[1] *Journal of Mental Science*, p. 201, July 1885. There is a description by Dr Roller of a case of hysteria following meningitis spinalis in a girl of ten.—*Allgemeine Zeitschrift für Psychiatrie*, Band xlviii., s. 424.

In the PROGNOSIS OF INSANITY IN CHILDREN much depends upon the nature of the causes and the extent and duration of the morbid processes. It has been laid down by Moreau that where there is no hereditary tendency in an attack of delirium or acute insanity the prognosis is favourable; but where there is a morbid heredity the hope of recovery is much less, and at any rate we may safely say that where there is a hereditary tendency there is a great danger of relapse in after life. In traumatic insanity delirium after lesions of the head may pass away; but injury to the intelligence and character noticed to come on later is likely to be more enduring. In a few cases improvement has followed operative treatment. We might expect that in toxic insanity the prognosis would be better on the principle *sublata causa tollitur effectus.* Dr Tuczek,[1] following up his admirable researches on the Insanity of Ergotism, has made a review of the condition of his former patients seven years after the epidemic of ergotism in 1880. The results, as often happens when experience corrects our hopes, are somewhat sombre. Out of a total of 29 admitted into the Asylum of Marburg, 9 were dead. Only 3 were certainly known to be wholly unaffected in mind; all of these were adults when admitted. Of the children treated for insanity, 2, aged fourteen, were said to be normal, but were not seen by Dr Tuczek; 3 had suffered much in intelligence, and 2 had died of convulsions. In none of these cases had the patellar reflex returned. Where the mental deficiency was enduring it did not appear to be progressive.

A large proportion of the cases of insanity are complicated with epilepsy, and we have thus, in forming a prognosis, to consider what hopes we have of treating this difficult malady. The great danger of insanity in children is idiocy or dementia. It is rare for a child to recover even from a short attack of melancholia or mania without some weakening of the mental faculties, and the earlier the age the greater the danger. As far as my knowledge goes, mostly all cases of mania in children, apart from the delirium of encephalitis, subside without ending in death from exhaustion.

It is wonderful how long idiots will live if proper care be taken of them, but the care required must be watchful and sustained.

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[1] "Ueber die bleibenden Folgen des Ergotismus," *Archiv für Psychiatrie*, Band xviii., Heft 2.

When I left the Larbert Institution the directors were induced to put in a lay superintendent, and for the treatment, to make use of the services of a medical practitioner in a town three miles off, although the constitution specified that there should be a resident medical officer. One of the directors told me that they had been advised that it would be sufficient for the medical attendant to visit the establishment three times a week. On my pointing out to another director the low mortality maintained up to this time, he replied that it was a healthy place, meaning that the low death-rate was due to the salubrity of the site. I made no commentaries on these estimates, which evidently allowed no credit to my anxious care of the ailments of the inmates, and the opportunities for prophylaxis and early diagnosis given by residence and close contact; but I resolved to wait the results of time, the most powerful of all controversialists. At Larbert I had but 15 deaths in 10 years, an average mortality of 15 in the 1000. I left the place in April 1881 in good hygienic conditions, with a newly increased water-supply, a serious want in my time. For the next month, at least, my place was supplied by a resident medical officer. In the next report due attention was called to the fact that for that year there had been no increased mortality. That no further attempt was made to continue this line of argument may be inferred from the following figures collected out of the Lunacy Reports:—

In 1881 there was one death to an average number of residents amounting to 124; in 1882 six deaths to an average of 133; in 1883 three deaths to an average of 159; in 1884 eight deaths to an average of 182; in 1885 ten deaths to an average of 184·5; in 1886 seventeen deaths to 180 resident; in 1887 nine deaths to 177·5 resident; in 1888 fourteen deaths to 180; in 1889 ten deaths to 189; in 1890 eight deaths to 197·5; in 1891 nine deaths to 206; in 1892 ten deaths to 215; in 1893 twelve deaths to 225·5; and in 1894 eighteen deaths to 231 average residents.

Thus the death-rates at the Larbert Institution from 1881 were successively 8 per 1000; then 45; then 18; then 43; then 54; then 94; then 50·6; then 77; then 52·9; then 40·5; then 43·6; then 46·5; then 53·9; then 77·4. Thus the average mortality from the year 1881 to 1894 inclusive is 50·8 per 1000. It is hoped that these statistics fairly indicate that the personal care and attention of a physician devoted to a difficult subject may have results capable of being rendered apparent through figures.

(*To be continued.*)

VI.—ENORMOUS PRIMARY SARCOMA OF THE LIVER, IN WHICH A LARGE BLOOD CYST, SIMULATING A HEPATIC ABSCESS, WAS DEVELOPED.

By Byrom Bramwell, M.D., F.R.C.P. Edin., F.R.S.E., Assistant Physician, Royal Infirmary; Lecturer on Practice of Medicine, School of Medicine.

With Pathological and Microscopical Report by R. F. C. Leith, M.D., F.R.C.P. Ed., Pathologist, Royal Infirmary; Lecturer on Pathology, School of Medicine.

The following case presents many points of pathological and clinical interest. The more important pathological features are:—(1) The rarity of primary sarcoma of the liver; (2) the large size of the tumour; (3) the fact that a large blood cyst (the cavity of which contained 53 ounces of anchovy-paste-coloured fluid) was developed in the interior of the tumour.

Clinically, the case is chiefly interesting from a diagnostic point of view. The physical signs exactly simulated those of an abscess of the liver. The liver was greatly enlarged; the dulness extended chiefly in the upward direction; the upper limit of the dulness was a curved line corresponding to the S-shaped curved line of a moderately large pleuritic effusion; the apex beat of the heart was displaced upwards and to the left; the right side in the infra-axillary and right hypochondriac regions was enlarged and bulging; a tender spot was present in the sixth right interspace in the anterior axillary line (indicative of the "pointing" of the fluid collection); an aspirator needle introduced into this spot entered a large cavity, and from this cavity 53 ounces of anchovy-paste-coloured fluid (highly suggestive of an abscess of the liver) were withdrawn on aspiration.

But against the diagnosis of hepatic abscess were the facts that there was no history of dysentery or other cause of hepatic abscess; and that the fluid removed from the cavity in the liver contained a much larger quantity of blood (red blood corpuscles) and a much smaller quantity of pus (leucocytes or pus cells) than a hepatic abscess usually contains, or, so far as my knowledge and experience enable me to judge, ever contains.

When, after incision and drainage, the oozing of red blood continued, the original diagnosis of a hepatic abscess, which was made before and after the first aspiration, seemed negatived. I was then at a loss to account for the nature of the condition. The most likely lesion seemed to me to be a large angioma of the liver which had broken down and formed a suppurating blood cyst. And looking back at the clinical features which the case presented during life, I still think that this was the most feasible diagnosis which could have been arrived at to account for all the facts of the case.

The notes of the case are as follows:—Mrs A. M., aged 25, was admitted to Ward 5a, Edinburgh Royal Infirmary, on 23rd June

1894, complaining of debility, emaciation, shortness of breath, and pain in the lower part of the right chest at a point 2½ inches below and slightly external to the right nipple.

Previous History of the Present Illness.—The patient states that she was quite well until her marriage, three months ago. Since then she has suffered from pain in the right side in the position described above. She thinks it was worse in wet weather. At first it was intermittent, and of a dull aching character, but lately it has been more constant, sharp, and boring. The patient attributes her illness to catching cold. At the commencement of the attack she was troubled with a dry cough, but there was no expectoration. The cough continued for two or three weeks, and then disappeared; the pain, however, remained. In other respects she has been fairly well, though getting weaker. Her appetite has been good, and her digestion good, though she has been somewhat troubled with flatulence. She has noticed that the right side of the chest has recently become more prominent than the left.

Previous History prior to the Present Attack.—The patient states that until the present illness commenced she always enjoyed good health. She has never lived abroad, and has never suffered from dysentery, diarrhœa, or any affection of the bowels. She last menstruated some six weeks ago.

Family History.—The patient is one of a family of five; four are living, strong and healthy; one died at the age of six from tubercular meningitis. Her father and mother are both alive and well. So far as she knows, none of her relatives have suffered from any liver affection.

State on Admission.—The patient is pale and thin; she looks extremely ill. She lies on her right side; she says that the pain is worse when she attempts to move or when she lies in any other position. There is no jaundice. The evening temperature is about 100°; the morning temperature 98°; pulse varies from 110 to 120.

The right side of the thorax over the region of the liver (inframammary and hypochondriac regions) looks fuller than the left. The bulging is most marked in the position of the fifth, sixth, and seventh interspaces in the anterior axillary line. The sternum appears to be pushed forward, and there is some fulness in the epigastrium. A localised tender spot is present in the sixth right interspace in the anterior axillary line. The apex of the heart is displaced upwards and to the left; it corresponds to a point slightly outside and on a level with the left nipple. The liver dulness is greatly increased. In the mammary line it extends from the third rib above to a point 1 inch above the umbilicus. Posteriorly there is marked dulness over the lower part of the right chest; the dulness extends as high as the spine of the scapula; its upper border is curved, and corresponds in shape to Garland's S-shaped curved line, representing the upper limit of the dulness in a moderately large pleuritic effusion.

The breath sounds, vocal fremitus, and resonance are absent over the dull area.

On the left side of the chest the breath sounds are harsh and bronchial in character, and the vocal fremitus is well marked.

The heart appears to be normal.

The splenic dulness seems to be normal.

The tongue is red, congested, and dark-looking, not furred or tremulous. The appetite is good. The patient is troubled occasionally with flatulence. The bowels are costive.

The urine is of a dark reddish-brown colour; clear, acid in reaction; its specific gravity is 1014. The deposit, which is considerable, consists of amorphous urates and uric acid. The urea equals 1·3 per cent. The urine contains neither bile, blood, albumin, nor sugar.

Treatment and Subsequent Progress of the Case.—On the evening of the patient's admission to hospital a diagnostic puncture was made by my House-Physician into the right pleural sac, but no fluid was withdrawn.

On *June* 25, a hypodermic needle was passed into the right chest at the tender spot between the fifth and sixth ribs, and some dark anchovy-paste-like fluid, highly suggestive of an abscess of the liver, was removed. On microscopical examination, it was found to consist of red blood corpuscles, leucocytes, and broken-down cellular elements, apparently liver cells.

On *June* 26, 53 ounces of dark anchovy-paste-coloured fluid were withdrawn with the aspirator: the needle was passed into the liver at the position of the tender spot between the fifth and sixth ribs. The fluid which was withdrawn consisted of white blood corpuscles, red blood globules, broken-down cells, granular *débris*, and a few large cells, apparently liver cells, in process of necrosis and fatty change. The amount of blood which the fluid contained was much larger than one expects to find in an abscess of the liver.

The removal of the fluid was followed by marked relief both to the breathing and the pain.

June 27.—The patient feels better to-day; she is quite free from pain; her expression is less anxious looking, but she is very pale, and the pulse is quick (120), the respirations 32, the temperature 98°·8. There was little or no rise of temperature last night. The tongue is moist, red, and speckled with a white fur.

June 28.—Last night she suffered a good deal from pain in the right shoulder. To-day she still complains of pain, and the cavity in the liver appears to be filling up. There is some œdema of the skin in the right hypochondriac region.

July 1.—The distension of the right side of the thorax is quite as marked as it was before the aspiration; the cavity in the liver has evidently filled up. The pain and difficulty in breathing are very troublesome. The patient is very pale and weak; the pulse ranges from 114 to 120; the respirations from 38 to 40. The feet are slightly swollen. Mr Cotterill saw the patient with me, and it was agreed to incise the cavity and to insert a drainage-tube.

The operation was performed on *July* 2. 50 ozs. of anchovy-paste-coloured grumous fluid, which was more bloody than that removed by aspiration, were evacuated.

July 3.—The patient had a very good night. She is quite free from pain, and says that she feels better. The tongue is clean and moist, the temperature 97°, the pulse 108, the respirations 36.

July 7.—The wound has been dressed several times; there is a considerable quantity of bloody discharge. The patient is very pale, but in other respects looks better. She says that she has been much relieved since the operation. The tongue is clean; the appetite so good that the nurse says the only difficulty is to satisfy her, for she is ravenously hungry. She is sleeping well.

July 9.—The bloody discharge still continues in considerable quantity, and the patient is more anæmic. In other respects she is well. To have one of Robertson's (No. 3) Blaud's pill capsules three times daily.

July 10.—The bleeding still continues; ice-bags to be kept continuously applied to the region of the liver.

July 17.—The bleeding still continues notwithstanding the local application of ice and the subcutaneous injection of ergotine. The patient was so profoundly anæmic that it was decided, after consultation, to close the wound. Mr Cotterill accordingly sewed the edges of the wound closely together with horsehair, and painted collodion over the surface of the wound.

July 18.—The patient suffered a good deal of pain in the region of the liver during the night. There is some oozing through the dressing to-day. Five minims of turpentine to be given every eight hours.

July 20.—Not a drop of fresh blood has escaped through the dressing since yesterday morning. She has only had two doses of turpentine,—one on the evening of the 18th and a second on the morning of the 19th. She feels sick, the turpentine has therefore been stopped. She complains of pain in the tip of the right shoulder. The cyst has again filled up; the right side is again much more prominent than the left; the breathing is very rapid, the patient profoundly anæmic and prostrate. With the object of relieving the pain and distress of breathing, the cyst was again aspirated, and 20 ounces of dark bloody fluid, containing some pale coagula, withdrawn. On microscopical examination the fluid consisted of leucocytes, red blood corpuscles, granular *débris*, and a few large cells, apparently liver cells.

July 24.—The patient feels very weak and prostrate, but is free from pain. There is a little leakage from the puncture.

July 26.—The breathing was so much distressed last night, that the House-Surgeon again aspirated the cyst in two places. On percussion to-day an area of tympanitic resonance is present on the right side between the fourth rib and the seventh space anteriorly.

July 30.—The patient died to-day.

Pathological Report by Dr R. F. C. Leith.

The necropsy was made by me on the 31st July 1894, some twenty hours after death, Dr Bramwell being present.

The body was somewhat emaciated; post-mortem rigidity and lividity were slight. There was a recent linear cicatrix in the sixth right interspace. It ran parallel with the ribs for about 1 inch from the nipple line outwards. Its outer extremity showed a small aperture about the size of a crow-quill. This led by a short sinus downwards, backwards, and inwards into a large cavity. A probe could be passed into this cavity for fully 6 inches, and could be moved freely about in it.

On opening the abdomen the peritoneum was seen to be normal, but the membrane was drawn upwards and over to the left side. The liver was more pominent than usual, and projected for fully 2 inches below the costal margin in the line of the gall bladder. The left lobe extended further into the left hypochondrium than usual, and also projected further downwards. The right lobe, just below the costal margin, showed a deep groove formed by the uprising margin of a prominent smooth tumour-like swelling of a whitish, glistening, and fibrous appearance. This was seen over the whole lower margin of the right lobe, and passed upwards beneath the ribs as a large dome-like swelling. On opening the thorax and removing the sternum with the rib cartilages, the upper surface of the liver was found to be extensively adherent by recent easily separable adhesions to the anterior part of the diaphragm. These were strongest and oldest opposite the level of the fifth rib. The large dome-like tumour already referred to was now seen to occupy the whole of the upper surface of the right lobe of the liver, and to project considerably into the left lobe, displacing the suspensory ligament fully $\frac{3}{4}$ of an inch to the left. It was uniformly round, and had a glistening, fibrous appearance. It rose gradually upwards, reaching a considerable height above the ordinary level of the liver in the middle of the right lobe. The appearance of the groove at its lower margin was partly due to the colon, etc., pressing the thin inferior lower liver border forwards. Two small apertures were seen in the anterior surface of the tumour, a little above and to the right of its centre. These led into cavities in the tumour, apparently separate from one another, and a probe could be passed from the upper of the two through a small aperture in the middle of the diaphragm into the right pleural cavity. This perforation in the diaphragm was due to the puncture of an aspiration needle shortly before death. The right pleural cavity contained a small quantity of recent lymph. On palpation of its upper surface, the whole tumour gave a sense of semi-fluctuation more marked towards the right side than inferiorly and to the left.

On removing the liver, the inferior vena cava at its place of exit from the organ was free from clot, but at its entrance into it, and for fully 2 inches downwards in the abdomen, it contained a pale greenish lateral thrombus adherent to its right side. It was comparatively recent, not very firm or adherent, and faded gradually below into an ordinary black clot. The vein in its course through the liver was free from clot. The structures of the anterior layer of the gastro-hepatic omentum, the hepatic artery, bile ducts, and portal vein were normal and in no way obstructed. The portal vein contained no clot even in its main lateral branches. The liver weighed 9 lbs. 6 ozs., and measured 11½ inches transversely, 10 inches antero-posteriorly, and fully 4½ inches in thickness. The tumour was now seen more fully, and occupied, as already mentioned, nearly the whole of the right lobe and a part of the left. It projected above the upper surface of the organ, though it hardly reached its under surface, which presented practically a normal appearance. It measured 7 inches in transverse diameter, 7½ inches in antero-posterior diameter, and about 4 inches in thickness. The gall bladder was small and contracted, and did not show below the lower liver border. It contained a small quantity of olive-green viscid bile.

An antero-posterior section was made through the middle of the right lobe. It showed the tumour mass occupying the whole of the right lobe, replacing the proper liver tissue everywhere except for 1 to 1½ inches towards the inferior border, and a mere shell on part of the under surface. It was everywhere encapsulated by a firm fibrous-looking capsule of varying thickness.

The main mass of the tumour was composed of a structureless, red, granular, and friable material, obviously crumbling blood-clot. The rest showed lobed and irregularly rounded masses of a soft whitish-yellow gelatinous-looking substance, reminding one somewhat of a gelatinous blood-clot. These were situated towards the inferior and posterior part of the liver. They were seen, on the one hand, to be clearly defined and bounded by the limiting external capsule, and, on the other hand, to irregularly mingle with the hæmorrhagic mass. The largest area was about the size of an ordinary orange, oval in shape, with a clearly defined fibrous-looking wall around it, separating it from the hæmorrhagic mass. The same capsular appearance was seen elsewhere, but not so distinctly; and in all cases the contained gelatinous material could be easily detached, and suggested the idea of a multilocular cyst into which the jelly-like substance had grown as solid ingrowths from part of the wall. Other antero-posterior sections were made both to the right and left of this section, and showed irregular and rounded areas of the gelatinous substance mixed up with red areas, evidently consisting of pure blood-clot or of the gelatinous material infiltrated more or less intimately with blood. What appeared to be white fibrous septa penetrated the whole tumour in several directions. Everywhere towards the left the encapsulation seemed to be perfect, but near the right border there were a few places in which it was scarcely detectable. In fact this part showed an appearance as if separate roundish centres had become confluent. A comparison of the appearances presented by all these sections led me to believe that the more actively growing part of the tumour lay towards the right and the oldest part to the left.[1] The liver substance, where it was still visible outside the tumour, showed a distinct fatty change. It was paler than normal, and presented irregular areas of congestion, but nothing else abnormal. The branches of the portal vein throughout were free from clot, and the other structures of the portal spaces presented normal appearances. None of the bile ducts were dilated. Some of the sublobular veins showed small recent thrombi in the neighbourhood of the clot, evidently secondary in their nature.

No growth of any kind was found anywhere else, either in any of the thoracic or abdominal viscera.

The spleen weighed 5 ozs. It was firm and pale, but healthy.

The left kidney weighed 4 ozs., and the right 4½ ozs. They were both small, and paler than usual; but beyond a slight waxy degeneration affecting some of the Malpighian bodies, they appeared to be healthy.

The stomach and intestines were quite healthy, as were also the mesenteric and retro-peritoneal glands. The bladder, vagina, uterus, ovaries, etc., were all carefully examined and found to be normal.

The heart weighed 7 ozs. Its valves were competent and healthy. The myocardium was somewhat atrophied and pale.

The left lung weighed 14 ozs. and the right only 10 ozs. The upper lobe in both was anæmic, and the lower œdematous. There was some collapse on both sides, but especially on the right, towards the base and root. There was also some recent lymph on the base of the right lung and on the corresponding surface of the diaphragm around the puncture.

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[1] It is a somewhat remarkable fact that in no part of the tumour could I find any trace of such a cyst as could have held the amount of chocolate-coloured fluid which was drawn off during life. In fact, so far as the naked eye could judge, there were apparently no obvious cysts present. A large number of cysts of various sizes was, however, found microscopically to be present. On passing the probe through the aperture in the capsule already mentioned, it was seen to enter into the large hæmorrhagic mass. It is, therefore, probable, that this was the source of the fluid, and that during life it had been a cystic mass into which hæmorrhage gradually took place, and the clotting may have been largely just ante-mortem or partly even post-mortem.

The brain weighed 48 ozs. It was healthy, and no other lesion of any kind was found in any other structure in the body.

Microscopic Examination.—Sections of the margin of the tumour showed a well-defined fibrous capsule separating it from the condensed and somewhat cirrhosed liver tissue. The structure of this marginal part of the tumour was mainly cellular, consisting of spindle and irregularly-shaped cells in a recticular-looking matrix of finely fibrillar connective tissue. The cells varied much in size, and resembled sarcomatous cells of a somewhat aberrant type. Some of them were very large, with convoluted or multiple nuclei. Such giant cells, however, are not infrequently found in spindle-celled sarcomata. Many persistent bile ducts were to be seen in this part of the section. Sections of any of the gelatinous areas showed a structure characteristic of a medium-sized spindle-celled sarcoma. The cells were long and spindle-shaped, the nuclei oval and almost rod-shaped in places. Indeed, here and there the cells closely resembled non-striped muscle cells. The intercellular substance was scanty and the bloodvessels rudimentary. Sections of the material in the large blood cyst or hæmorrhagic-looking area proved to be ordinary blood-clot. Towards its margins it became mixed with tumour cells. Many small branched cysts lined with a single layer of endothelium were seen both in the typical sarcomatous part and at the margin of the hæmorrhagic area. They were free from contents, except here and there where the hæmorrhage around them had passed into them and partly filled them. Microscopic hæmorrhages were also plentifully seen in nearly every part of the tumour.

Nature of the Tumour.—It was undoubtedly a sarcoma, tending towards the spindle-celled variety. On account of its numerous bloodvessels, and the multitude and magnitude of its hæmorrhages, it might be called an angeio-sarcoma. The cysts were hardly numerous or important enough to entitle it to be called a cystic sarcoma.

Origin of the Tumour.—After sections of many parts of the periphery were made, some were found showing an early stage of the growth. They showed columns and islands of liver tissue surrounded by the tumour cells. The latter were seen pushing themselves outwards between the columns of liver cells, and as the endothelial cells of the bloodvessels could sometimes here be made out, the tumour cells apparently occupied the place of the perivascular lymphatics. This naturally suggested an origin in the connective tissue cells lining these lymphatics. If any safe deduction can be made as to the origin of any sarcoma from the behaviour of its growing margin, then there is clear histological evidence in this case of the tumour having originated in the connective tissue cells lining the perivascular lymphatics of the intralobular capillaries of the liver. Block believes that the origin in his case was from the endothelium of these capillaries;

while Hörup, in his, traces it from the adventitia of the hepatic arteries.

The literature of primary liver sarcoma is not of a very satisfactory kind. I have found a record of about 33 cases, few of which, however, can be regarded as true examples. Of these, six were melanotic and three lympho-sarcomas, more or less diffused. All except three of them presented the appearance of many nodules scattered more or less widely throughout the liver substance. In these three there was a large mass in the right lobe, partly gelatinous, and partly mixed and infiltrated with blood. One was in a child 8 months old, recorded by West. He speaks of it as a cancer, and says there were secondary nodules in the lung. From its description I think it may be justly regarded as a sarcoma. The second case is recorded by Roberts, under the title of "A Case of Fungus Hæmatodes of the Liver." It occurred in a girl of 12, and formed a large mass weighing about 8 lbs. in the right lobe. The third case is recorded by Hörup of Copenhagen. It occurred in a woman of 26, and formed a mass in the right lobe measuring about 5 inches in all directions. It was a small round-celled sarcoma.

BIBLIOGRAPHY.

1. VIRCHOW.—*Die Krankh. Geschwülote*, Bd. ii., s. 276. Melanotic.
2. ACKERMANN.—*Die Histogenese und Histologie der Sarkome*, s. 32. Melanotic.
3. FRERICHS.—*Klinik der Leberkrankheiten*, Bd. ii., s. 321, 1861. Melanotic.
4. NAUNYN.—"Ueber eine eigentümliche Geschwulstform der Leber," in *Archiv für Anat. u. Phys.*, von Reichert u. Du Bois Raymond, s. 710, 1866. A cysto-sarcoma.
5. HÖRUP.—*Hospitalstidende*, 10 Jahrb., No. 1; *Jahresbericht* von Virchow und Hirsch, Bd. i., s. 284, 1867. A small round-celled sarcoma.
6. MILLARD.—"Diathese sarcomateuse. Baste sarcome du foie," etc., *L'Union médicale*, Nos. 122, 123. Spindle-celled sarcomata (doubtful cases).
7. E. WAGNER.—"Die heterologe geschwultstformige Neubildung von adenoider oder cytogsner Substanz," etc., *Archiv der Heilkunde*, s. 45, 1865. A lympho-sarcoma.
8. PELLACANI.—"Sarcoma fuscicolato del fagato," etc., *Rivista clinica di Bologna*, 1880; Virchow u. Hirsch's *Jahresbericht*, Bd. i., s. 271, 1880.
9. ROBERTS.—"A Case of Fungus Hæmatodes of the Liver," *Lancet*, i. p. 77, 1867.
10. PARKER.—"Diffuse Sarcoma of Liver, probably Congenital," *Trans. Path. Soc.*, vol. xxxi. p. 290, 1880.
11. LEDUC.—"Sarcome mélanique du foie," *Progrès méd.*, viii. 591-593. Paris, 1880. (Secondary to melanotic sarcoma of eye.)

12. MEISENBACH.—"Myxosarcoma of the Liver in an Infant Four Months Old," *Weekly M. Red.*, ix. 433. St Louis, 1884.
13. BURNET.—"Primary Melanotic Sarcoma of Liver" (card specimen), *Trans. Path. Soc.*, vol. xxxvi. p. 252, 1885.
14. TOOTH.—"Diffused Lympho-Sarcoma of Liver," *Trans. Path. Soc.*, vol. xxxvi. p. 236, 1885.
15. WINDRATH.—"Ueber Sarkombildungen der Leber," I. D. Freiburg, B., p. 20, 1885.
16. WEST.—*Diseases of Children*, p. 764, 1884.
17. HUTYRA.—"Adatok a majdaganatok tanahoz" (Sarcoma of the Liver), *Orvosi hetilap*, xxx. p. 409, 1886.
18. REHN.—*Tageblatt der 60 Versammlung deutscher Naturforscher und derzte im Wiesbaden*, s. 313, 1887.
19. PODROUZEK.—*Prager med. Wochenschr.*, No. 33, p. 351, 1888.
20. BLOCK.—"Ueber ein primär melanotische endothelium der Leber," in *Archiv der Heilkunde, Leipzig*, s. 412, 1875.
21. ORTH (M.).—"Ueber primäres Lebersarkom," I. D. Strassburg, 1885.
22. ARNOLD (J.).—"Zwei Fälle von primärem Angiosarkom der Leber," *Ziegler's Beiträge*, Bd. viii. p. 123, 1890.

Etc., etc.

Part Second.

REVIEWS.

Die Krankheiten der Wärmen Länder: Ein Handbuch für Arzte. Von Dr B. SCHEUBE. Jena: Verlag von Gustav Fischer: 1896.

A RELIABLE text-book dealing with tropical diseases has long been wanted. A considerable number of monographs on various diseases have recently been published, but, with the exception of Davidson's *Hygiene and Diseases of Warm Climates*, which was published in 1893, no modern handbook has been published giving an up-to-date account of our knowledge of tropical diseases. Although Davidson's work takes justly a very high place in the literature of tropical disease, yet in our opinion it fails by giving too much "ancient history" and too little treatment. This book by Dr Scheube fulfils, as far as we know, the desideratum which has for long existed. The author was formerly a professor in a medical school at Kioto in Japan, and therefore had personal acquaintance with many of the subjects with which he deals. He has also, it is evident, widely read the subjects of his book, for an extensive and well-chosen bibliography is adhibited to each section of his work.

We are not, on the whole, enamoured with German text-books, because they are so often very diffuse, but in this case we are bound to admit that the author has erred, if at all, on the side of conciseness. To show his method, we may take yellow fever.

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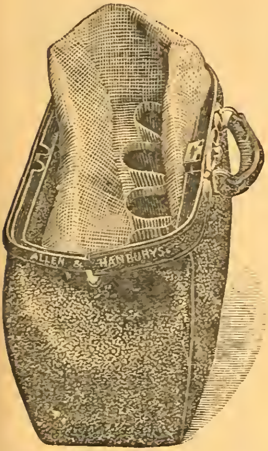

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He first gives a concise definition; then follow symptoms, the history and geographical distribution of the disease; then etiology, symptoms, pathological anatomy, diagnosis, prognosis, prophylaxis, treatment, and literature.

It is not needful to give an extended review of all the author's views. They are well up to date, and the bacteriological sections are very clear and in sufficient detail. Dr Scheube thinks that leprosy is contagious, but that its contagiousness varies in different places, being most contagious where the disease has been most recently introduced. The tubercular form of leprosy he considers more contagious than the anæsthetic form. With regard to its hereditary character, he seems to think that its spread is more due to contagion than to direct heredity, for where isolation is in vogue heredity seems to play little part in its production. He points out three important considerations which are against its hereditary nature:—1. No fœtal form of leprosy is known. 2. The generative organs are rapidly damaged and sterility induced. 3. The rapid disappearance of the disease in some districts, *e.g.* the Faroe Islands and on the west coast of Sweden. The author holds that the nature of the beri-beri poison is not yet known, and that so far observers have not found the specific micro-organism. Still he believes that the disease is infectious. He gives us little light on the "sleeping sickness" of West Africa, although what is known of the disease is concisely stated. Dr Scheube does not think that the "blackwater" fever is an endemic form of yellow fever, but that it is due to malaria. Chloroform is strongly advised in the treatment of that disease, and also the inhalation of oxygen (but how is that to be obtained in the regions where the disease obtains?). The author does not think that we are yet certain what micro-organism causes dysentery, yet he is sure that it is caused by a microbe, and considers that calomel and ipecacuanha are the sheet-anchors in treating the disease, both drugs having a specific effect upon it. He personally prefers ipecacuanha.

The work is well up to date, and British investigations are not left out of account, as witness the numerous references to Dr Manson. The author may not regard it as a compliment, but we may say that the volume might have been written by an American or Briton, and we can strongly recommend it to all practitioners who have either patients from abroad with whom to deal, or who are themselves proceeding to a tropical country. Perhaps the best recommendation we can give to the volume is to hope that it may be translated, or that some one, taking Dr Scheube's work as a basis, may give us something in the same style in our own tongue.

The Physiology and Pathology of the Cerebral Circulation. By LEONARD HILL, M.B. London: J. & A. Churchill: 1896.

IN this volume the author has developed and summarized the results of interesting researches in which he has been for some time engaged, and lays before the profession information as regards the physics of the brain and of the cerebral circulation, which is of great practical importance to the physician and surgeon. The work is one which does not entail much time or effort to read through and understand, and on this account will be all the more readily perused by men in practice.

In it the author first discusses the causes of the pulsations of the brain, the subject of the cerebro-spinal fluid, and the process of absorption of fluid from the cranial cavity, and then passes to a careful consideration of the phenomena of the cerebral circulation properly so-called. His main method of experiment in this connexion was to obtain records of pressure at one and the same time in brain substance, torcular Herophili, right auricle, and carotid artery. In this way he was able to note the changes which alterations of pressure in any of those produced on the others; how, for example, changes in arterial pressure affected that of the brain substance and veins, how alterations in brain substance pressure affected the pressure in the arterioles and veins, etc. As regards vaso-motor nerves in the brain, his experiments indicate that they do not exist—a conclusion with which we have no hesitation in agreeing; and he shows that the blood-pressure in the brain as a whole must vary with the general blood-pressure as controlled by the vaso-motor centre. He next discusses the influence of the force of gravity on the brain circulation, and devotes some pages to the consideration of what is commonly designated as "shock."

Chapters on Cerebral Anæmia, Cerebral Metabolism, and Cerebral Compression follow, and the practical bearing of these on epilepsy, apoplexy, brain tumours, and other pathological conditions is demonstrated in a very interesting manner. Whilst holding that there is much more in connexion with cerebral physics than the experimental method can ever show, we have no hesitation in cordially recommending this book to the practical physician and surgeon.

Die Krankheiten des Gehirns und seiner Adnexa im Gefolge von Naseneiterungen. By Dr R. Dreyfuss, Specialarzt für Hals, Nasen, und Ohrenleiden in Strassburg. Jena: Verlag von Gustav Fischer: 1896.

The affections of the brain and its membranes following upon suppuration of the middle ear are well recognised, and there exists abundant surgical literature to demonstrate not only the results of such infection, but the paths by which it spreads, and the methods that may be adopted for surgical treatment. The author of this monograph has sought to deal in a similar manner with the affections of the brain and its membranes consequent upon suppuration in the nose and its accessory cavities, and he has done well in thus putting before the surgeon and the specialist the possibility of brain abscess arising from this source. The work is short, but clear and concise, and considerable pains have been taken to make it a complete *résumé* of the subject. All the fatal cases that have been recorded in literature are briefly detailed, and a very complete bibliography is appended.

Dealing first with fatal cases from meningitis and cerebral suppuration following upon such operations upon the nose as cauterization, the removal of mucous polypi, and superficial injuries to the mucous membrane, he records next the cases of suppuration in the maxillary sinus, frontal sinus, ethmoidal cells, and sphenoidal sinus, which had proved fatal from secondary affection of the brain or its membranes. Of these, the largest number of deaths is consequent upon frontal sinus suppuration.

The paths of infection are next discussed, these consisting in dehiscences and defects in the bones and in the blood and lymph streams. It is especially interesting to note the course of infection in the five fatal cases following suppuration in the antrum of Highmore: in the first, there was thrombosis in the veins of the pterygoid plexus, orbital veins, and cavernous sinus; in the second, suppuration extended to the ethmoidal cells, and, perforating the lamina cribrosa, gave rise to an abscess in the frontal lobe; in the third, the pus perforated the posterior wall of the antrum in its upper part, and a temporo-sphenoidal abscess was developed; in the fourth, there followed from direct continuity periostitis and ostitis of the floor of the orbit, inner wall of orbit, ethmoid bone, and frontal bone, with a resulting abscess in the frontal lobe; while in the last case the course was somewhat similar to the preceding one, but in addition there was a perforation into the sphenoidal sinus. The case proved fatal from subdural abscess and abscess in the frontal lobe.

In conclusion, the indications for surgical interference in accessory cavity suppuration are dealt with, a study of which will repay the reader interested in the treatment of these conditions.

Notes on the More Common Diseases of the Eye. By ROBERT W. DOYNE, F.R.C.S. London: H. K. Lewis: 1896.

DR DOYNE in his preface disclaims any intention of writing a book upon ophthalmology, and only aspires to publish some brief notes on the more common eye troubles which shall be of help to a general practitioner who, perhaps, does not see sufficient eye cases to encourage or require him to study the subject closely and systematically. This purpose is well served in forty pages of plain, sound, practical good sense.

Abdominal Surgery. By J. Greig Smith, M.A., F.R.S.E., Surgeon to the Bristol Royal Infirmary; Professor of Surgery, University College, Bristol. Fifth Edition. In Two Volumes. London: J. & A. Churchill: 1896.

Five years have elapsed since the fourth edition of this admirable work appeared. Much progress has been made in the area and in the technique of abdominal surgery in that period; so great, indeed, has been the progress that some subjects are new, the relative importance of others has been altered, and the whole field of work is enormously enlarged; and its literature is loaded with records of cases and statements of opinion often of the most contradictory kind.

We welcome with much pleasure this new edition, which is practically a new work. Two volumes instead of one makes it more handy to hold, and, like its former editions, it is full of information and of help. No surgeon, however experienced, but is the better of knowing what Prof. Greig Smith has done, and what methods he has found helpful himself in his work in the abdomen. Some men write systematic treatises in which history is laid under contribution, and the journals of the day are ransacked to afford detailed information as to the different methods that have been tried and suggested for treatment, and the reader is allowed to take his choice. Other works are written apparently to let the profession and the public know how many cases their authors have treated, but give little information as to exact methods. The practical surgeon who wishes hints for his own help turns to Greig Smith's work, and gets what he wants described in simple language, and with a marvellous absence of the capital letter which stands for the first person singular.

The chief additions in the new edition are articles on the Surgery of the Abdominal Parietes, on Symphysiotomy, on Subphrenic Abscess, and on the Surgery of the Ureters. Great increase of size and novelty of instruction are to be noticed in the articles on Hysterectomy for Myoma, on Enterectomy, on Gastric Ulcer, and on Appendicitis. The latter subject requires forty-three pages in the new edition in place of twelve in the old, and the chapter is fully illustrated by woodcuts by Treves, Lockwood and Rolleston, and by the author.

On certain moot points Mr Smith gives his opinion frankly, yet modestly; he is not an admirer of Murphy's button, and in cases where apparatus is required prefers the decalcified bone plate or bobbin. He does not dogmatise, but prefers cœlio-colotomy to lumbar colotomy, though owning that the statistics of operations during the last five years are not yet available. The various methods of gastrostomy are described with care; the author likes to feed the patient by the wound as early as possible, and he aims for the formation of a comfortable fistulous opening at "implanting that part of the stomach which is to form the fistula on the broadest possible surface of rawed wound." We could make many extracts from this admirable book; suffice it to say that no operating surgeon, however eminent, can afford to be without its instructive pages, and that even when possibly disagreeing with the author's conclusions, he will find it impossible to doubt the zeal for surgical improvement and single-eyed honesty of the author.

Traumatic Infection. Hunterian Lectures delivered at the Royal College of Surgeons of England. By CHARLES BARRETT LOCKWOOD, F.R.C.S., Hunterian Professor Royal College of Surgeons of England; Assistant-Surgeon to St Bartholomew's Hospital; Surgeon to the Great Northern Central Hospital. Edinburgh and London: Young J. Pentland: 1896.

THIS reprint of lectures which are already known as having appeared in *The Lancet*, needs brief but warm commendation on its appearance in book form. The subject dealt with is, as Mr Lockwood observes, a most difficult one; and can only become less so by patient and close observation and recording, such as we have in the pages before us.

The subjects discussed in these lectures are—Septic Peritonitis and other local infections (Lecture I.), Septicæmias and Sarcosepsis (Lecture II.), and various infective conditions (mixed infections, angina Ludovic, septic pneumonia, hectic) in the third lecture.

The methods of observation are referred to at the beginning, and the sources of error and lacunæ in the results are constantly acknowledged. At the same time, certain most important practical conclusions are deduced from a consideration of the facts,—for example, as to the possibility of saving cases of diffuse septic peritonitis, and as to the proper treatment of cancerous ulcers before operation for their removal, with a view to avoiding infection of the wound.

The pages on bacterial invasion, septicæmia and hectic, are full of suggestion, and points requiring elucidation have attention drawn to them. In a word, there is here material which no worker in this department can afford to ignore, and the lectures deserve careful study.

Food in Health and Disease. By I. BURNEY YEO, M.D., F.R.C.P. New and Revised Edition. London: Cassell & Co.: 1896.

WE have much pleasure in welcoming a new and revised edition of this most helpful work of Dr Burney Yeo. The present issue differs but little from the earlier ones. It includes, however, two new chapters.

Part I., dealing with "Food in Health," contains much that has long been familiar to us in such works as those of Parkes or Pavy; but the matter is put in a concise and readable form. It deals in a general and popular way with the nature of foods and their nutritive value. Dr Yeo does not attempt to enter fully into the strictly physiological questions of metabolism and the processes of digestion, but enough is stated to enable the reader to become fairly well acquainted with these subjects. In the chapter relating to the calculation of dietaries Dr Yeo is largely indebted to the tables drawn up by Dr Parkes. The mess tables for soldiers seem very meagre and unvarying, and it is a pity that exigencies of space have caused the author to leave out Colonel Burnett's interesting and valuable modifications in the soldier's dietary.

The second part of the book is, however, the more interesting from the practitioner's point of view. Dr Yeo has entered very fully into the question of "Food in Disease." Nothing could be better than his *résumé* of the feeding which should be adopted in diabetic conditions. In this chapter he has quoted largely from Dr von Noorden's work. In the treatment of all forms of albuminuria Dr Yeo seems to advocate, as most efficacious, a purely milk diet. He gives a full note on the Salisbury method of treating obesity and dyspepsia. In the two new chapters he deals with the diet to be followed in rickets, scurvy, affections of the circulatory and respiratory organs, rheumatism, cutaneous affections, nervous diseases; and in an appendix he describes fully the sterilization and Pasteurization of milk. We note that he lays much stress on the administration of raw meat or raw-meat juice in many forms of disease, and cites very fully Dr Balfour's rules for diet in the "Senile heart." The "select recipés" have been increased from 82 to 112.

Altogether, Dr Burney Yeo's book may be safely recommended as a trustworthy guide to all who seek to influence disease through diet.

Les Variations de la Mortalité à Paris, leur Cause Météorologique. Par M. le docteur F. CHIAIS. Menton, 1895.

THE author observes that the quantity of oxygen, nitrogen, and carbonic acid in the atmosphere remains about the same, while the variations in the amount of watery vapour are very considerable. The atmosphere contains much more moisture in summer than in winter. In 1894 it was noted at the Observatory of Parc St Maur there were 1 gramme and 20 centigrammes of aqueous vapour in 1 square metre of air, while on the 25th August there were 17 grammes and 40 centigrammes.

Dr Chiais has ascertained by exact experiments that there is more aqueous vapour in a room not heated than in the open air outside, probably because the diffusion of strata of air of varying humidity is checked in a closed space.

After a very careful study of the death-rates and the public health of Paris and other places, Dr Chiais has arrived at the conclusions that the mortality of diseases considered due to cold, such as inflammation of the air-passages, pleurisy, and organic diseases of the heart, increases when the quantity of watery vapour is below 5 grammes to the cubic metre, and that there is a suspension of such diseases and an increase in the mortality from diseases of the intestinal canal when the weekly mean of watery vapour is above 10 grammes to the metre. Dr Chiais supports his views by careful statistics and meteorological observations. He wisely directs attention to the absolute amount of vapour in the air instead of the relative amounts to saturation at a given temperature, as indicated by the dry and wet bulbs. The air takes up moisture in proportion to its temperature; hence where there is any water to be evaporated there will be more in summer than in winter.

Dr Chiais insists that there is no fixed proportion between the degrees of cold and the mortality from diseases of the respiratory organs, while this mortality remains at an almost constant cipher when the amount of vapour in the air is below 5 grammes to the metre. He holds that the temperature of the air does not penetrate deep into the air-passages, but that variations of tension in the watery vapour affect even the minute air-cells. The air entering into the lungs has its temperature raised to that of the body, and at the same time the expired air is saturated with moisture. Of course, if the temperature be low, it will draw more caloric from the body, and if the quantity of moisture in the inspired air be small, it will draw more moisture from the lungs before expiration. The quantity even of invisible moisture in the atmosphere has a decided effect in diminishing radiation. On this account a moist climate has a more equable temperature. It is thus difficult to separate the effects of heat from those of moisture. We hope that Dr Chiais will continue and extend his interesting observations, which show much ability and sagacity.

Preliminary Report on the Tsetse Fly Disease, or Nagana, in Zululand. By Surgeon-Major DAVID BRUCE, A.M.S. Ubombo, Zululand, December 1895.

THIS is a report of investigations by Dr David Bruce at the request of the Government. It is addressed to the Governor of Natal and Zululand, and has been printed at Durban. The tsetse fly-disease was made known to the British public about forty years ago by the travels of Dr Livingstone. It is prevalent in some tracts of Zululand, and it is also said to occur in the Congo State. The disease is invariably fatal in the horse, ass, and dog, and few cattle affected by it recover. The tsetse fly is an aggressive bloodsucker, like the mosquito, and attacks man without the same morbid effects as in these animals. It was previously thought that the disease was caused by the fly injecting some poison into the blood; but Dr Bruce holds that the insect acts as the carrier of a living virus which, finding its way into the blood of the animal bitten or pricked, propagates in the living stream. Dr Bruce has always found that this parasite was present in the blood wherever the symptoms of the disease appeared, and that it was absent in healthy animals. Injections of blood containing the hæmatozoon were found to cause the disease. A dog that had eaten a blood-clot from a horse who died of it became also infected. The symptoms described in the horse are a watery discharge from the eyes and nose, and a slight swelling in the belly and hind legs. The animal soon loses flesh; his hair turns harsh and thin; the eyes take a milky opacity; he becomes emaciated, and at last falls down. His breathing becomes shallower, until it ceases altogether. The appetite is not much affected, nor does the animal seem to suffer much during the course of the disease.

Dr Bruce holds that the fly is simply a carrier of the contagium; but up to the time that he had closed his preliminary report he had not succeeded in tracing whence the hæmatozoa originally came. The parasite, which has an eel-shaped appearance, is about one-fourth of the diameter of a red blood-corpuscle in thickness, and two or three times its diameter in length. In structure it "consists of a small mass of protoplasm surrounded by a limiting membrane, and without any differentiation of structure, except in so far as the membrane is prolonged to form the longitudinal fin and flagellum." The appearance of the hæmatozoon in the blood is accompanied by a rise of temperature, and its course is marked by a great diminution of the red corpuscles. Dr Bruce has found that the giving of some grains of arsenic daily has enabled a horse to retain its health while exposed to the bites of the flies. If this observation be confirmed by others, the tsetse will cease to be one of the most redoubtable scourges of the African torrid zone. It is needless to enlarge upon the interest and importance of these observations. Dr Bruce's report is written with much clearness and precision. It is illustrated with seven pages of lithographs, which give the figures of the hæmotozoa and the tsetse in its different forms. The drawings of the dog and donkey affected by the disease show much power of artistic expression.

Dr Bruce is already known to the medical world by his discovery of the microbe of Malta fever. The experiments which he is still carrying on about the tsetse fly disease cannot fail to add much to his reputation, and we doubt not that when the present investigation is over he will find other subjects in South Africa for his great powers of original research. We hope that no war alarms will disturb the surgeon-major's scientific inquiries.

The Spas and Mineral Waters of Europe. With Notes on Balneo-Therapeutic Management in various Diseases and Morbid Conditions. By HERMANN WEBER, M.D., F.R.C.P., and F. PARKES WEBER, M.D., M.R.C.P. London: Smith, Elder, & Co.: 1896.

THIS book, which is intended to supply some elementary knowledge respecting the Spas of Europe, the methods of treatment adopted there, and the diseases and morbid conditions which are most likely to be cured or ameliorated by them, well fulfils the object the authors have in view, and, apart from more ambitious works, is the best we know on the subject.

The first chapter deals with hydro-therapeutics in general; the second, with the constituents and classification of mineral waters; the third, with the action of mineral waters on the body in their external and internal employment. The authors think that hardly any waters absorb through the skin, that no salts pass through the healthy skin, and that the increased diuresis which follows baths must be caused by reflex vaso-motor effects, due to stimulation of the cutaneous nerve-endings, and this may be partly due to salts dissolved in the bath water saturating the epidermis and coming in contact with the outermost nerve-endings. They do not think that the gas in the water passes into the circulation to any appreciable extent, but that the special stimulating effect of "iron baths" is chiefly due to a mechanically stimulating action exercised by the bubbles of carbonic acid gas as they collect and move along the skin.

Chapter IV. deals briefly with change of air and diet, and habits in their connexion with spa treatment; and exercise and massage are briefly dealt with. We then come to several chapters describing the various waters, and giving brief accounts of the different spas, access to them, accommodation to be found in them, the length of the season, and the names of various doctors in some cases. This list is not complete, as it is doubtful whether such a selection is advisable, and this leads one to notice a remark of the author's, that it is advisable for a medical man to know the different spas he recommends; also the doctor to whom he sends his clients. It certainly has an advantage; indeed, a great deal depends upon it, and it is probably for this reason that spa treatment abroad is most successful in those cases where the family doctor knows the spa and the spa doctor to whom he recommends his patients. It is, however, out of the question that the ordinary medical man can know more than a limited number of foreign health resorts, and hence the value of books like this.

We think a little more detail might have been given with regard to access and accommodation, and space might have been gained by the omission of various unimportant spas.

We are glad to notice that the "after-cure" is mentioned, for half the good obtained by residence at a spa is lost because the patient returns at once to usual occupations, whereas at least a week or two should be devoted to the important "after-cure." The bibliography is useful.

Strathpeffer Spa: Its Waters and Climate. By R. FORTESCUE FOX, M.D. Third edition. London: Adam & Charles Black: 1896.

STRATHPEFFER SPA seems flourishing, and in these days when we are so constantly attracted by the words "Made in Germany," it is as well to recollect that we have some successful health resorts within our own borders. If only a little more Continental life and civility and more moderate charges were introduced into our own health resorts, they would probably be far more successful than they are. We sometimes wonder that in these days of technical education instruction is not given in scientific spa management. We were recently in Strathpeffer, and were glad to notice that improvements were being carried on there. It is not necessary to say much concerning the book, as its appearance in a third edition shows that it has met a want. Dr Fox gives all necessary information regarding the meteorology of the Spa, the indications for the use of the baths and waters, and he calls attention to the fact that practically patients may be benefited all the year round, and thinks that Strathpeffer possesses in a marked degree the climatic qualifications belonging to a bracing winter health resort. "There are numerous cases of pulmonary disease—some incipient, others recurrent or advancing—in which the gradual influence of climate is certainly the most hopeful and perhaps the only curative treatment."

A good map and notes on the vicinity add to the usefulness of the little volume.

St Thomas's Hospital Reports. New Series. Vol. XXIII. London: J. & A. Churchill: 1896.

VERY much the most important paper in this volume is the admirable and comprehensive one on Cerebellar Abscess secondary to Ear Disease, by Dr Theodore D. Acland and Mr Charles A. Ballance. The article is divided into three parts. The first describes the history, progress, and treatment of a case which was under the authors' care; the second discusses very fully the symptoms, differential diagnosis, and treatment of cerebellar abscess; the third contains statistics of 100 cases of cerebellar abscess, abstracts of 77 cases of the same condition, and a full bibliography. The paper has evidently been written with great care, and is a most valuable contribution to cerebral surgery.

There are also interesting short papers on the Radical Cure of Umbilical Hernia, by Mr Bernard Pitt; on Two Cases of

Severe Injury to the Head, by Mr Battle, and on a Case of Acute Intussusception, by Mr Stabb.

Dr Payne edits some curious anatomical and surgical notes taken by a young practitioner between 1674-77. Dr Cory writes on the Condition as to Vaccination of Persons scarred with Small-pox; and Dr C. J. Cullingworth on the Criminal Responsibility of the Insane. There is also an interesting Note on the Physiology of the Spinal Cord by Prof. Sherrington, and the report of a very doubtful case of Intra-uterine Rickets by Mr Makins.

There is an obituary notice of Dr Bristowe, with a lifelike photograph of him.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXV.—MEETING XI.

Wednesday, July 1, 1896.—Dr William Craig, *Vice-President, in the Chair.*

I. Exhibition of Patients.

1. *Dr Allan Jamieson* showed a case of ACANTHOMA. He had never seen a similar case, nor did he know of any illustration of a skin disease resembling it. A. E., 20, a native of Perth, admitted to Ward 38 on May 30, 1896. Family history good. She has always been rather delicate, is stunted in growth, and has never menstruated. For the last seven years has suffered from bronchitis in winter, and has still a cough. Her complexion is sallow, and she is thin. Hair has a dry and faded appearance, sandy in colour. Digestive and circulatory systems normal. Urine contains no abnormal constituents. Her skin disease commenced when she was six weeks old on arms, and thence spread over body. Though treated in various institutions with some benefit for the time, she has never been wholly free from the complaint. It has been much worse since she was fourteen. When admitted to the Royal Infirmary the cheeks, forehead, and upper lip had pinkish-coloured infiltrated and crusted oozing patches, indistinguishable from a moist eczema. Scattered over the back, scapular regions, at root of neck, down the flanks, but less over the spine, and on the arms and legs, were rose-pink patches not very distinctly margined, and feeling a little thickened on pinching. These were dry, scaly, and rough. Between these were numerous blotches of a pinkish hue, the skin itself being sallow. On the front of the trunk there were similar patches, which over the

clavicles were arranged in lateral lines, on the hypochondriac region in dots. On the inner side of the thighs, extending to and below the knee, and on the areola of the mammæ, the condition reached its acme. It there looked quite like mucous tubercles, covered with brownish crusts. The patches were elevated from two to three lines, were uneven, nodulated, or mamillated, blunt papillary elevations. The elevations were firm though soft to feel, and their margins were sharply defined against the healthy skin, from which, indeed, they rose abruptly. The eruption bore evidence of scratching, and was itchy. The inguinal glands were enlarged. Boric starch poultices and boric acid baths continued for a few days removed all crusts and rendered the surface clean and smooth. From this time onwards the sole treatment consisted in inunction with a ten per cent. salicylic vaseline. By the end of June the greater part of the eruption was represented by smooth, flat, pinkish-purple patches, little if at all thickened, and now the source of no inconvenience. She had put on flesh, and looked plump and well. But the elevations on the inner aspect of the thighs and areolæ had not flattened down. They still presented smooth, closely-packed nodular prominences or projections. Most of these were a pale purplish-pink, with here and there a few of a darker brown tint. On pressure the colour faded entirely, and only returned after a few seconds, and then slowly. The marked thickening was perceptible on pinching up. One entire nodule, a quarter of an inch across, was cut out soon after her admission, and was prepared for examination by Dr Leith. The horny layer of the epidermis was thin but continuous. Its thinning may have been partially due to the salicylic acid, which had been used for a short time. There were long finger-like, sometimes branched, prolongations of the epidermis running down into the corium; these were composed mainly of well-formed prickle cells. The intercellular lymph spaces were dilated, and the cells themselves œdematous. The meshwork of the papillary corium was opened out, the bloodvessels dilated. The deeper layer of the corium showed some degree of cellular infiltration. Beneath this there was much firm connective tissue, arranged in wavy bands. Round the coil glands there was a myxomatous tissue, with branching connective tissue cells. The glands themselves were little altered. The condition, therefore, is an acanthoma, with secondary œdema. It approximates in structure, on the one hand, to eczema in an exaggerated degree; on the other, to the structure of a condyloma, and to the condylomatous-like patches found in the rare disease called acanthosis nigricans of Pollitzer, Janovsky, and Malcolm Morris. But for the present the case is unique.

2. *Dr G. A. Gibson* and *Mr Alexis Thomson* showed a patient after EXCISION OF PYLORUS FOR CANCER, also naked-eye and microscopic specimens of two cases of CANCER OF THE PYLORUS.

Dr Gibson said that the patient, a woman aged 46, was sent across to him by Dr Goodenough of Dysart in the month of April. She had presented every symptom of dyspepsia for five or six months. She was wasting rapidly, and there was in addition, on examination of stomach contents, total absence of free hydrochloric acid, and presence of lactic acid, with a very much distended stomach. There was underneath the origin of the right rectus considerable resistance on palpation. From all these symptoms he came to the conclusion that there was probably pyloric cancer. The patient was in the Deaconess Hospital. He asked his colleague, Mr Alexis Thomson, to see her with him. They concluded to perform laparotomy to remove the cancerous growth of the pylorus, as it seemed an eminently suitable case. The pyloric cancer was removed, and since that time the patient had made an uninterrupted recovery. When she first came under observation she was 6 st. 1 lb. in weight. After operation she was fed on peptonized food in small quantities by the rectum, and rapidly lost weight, but she was now 6 st. 10 lbs. in weight. She could now digest well, could walk a good many miles, and was in perfect health.

Mr Alexis Thomson said that, as neither of the patients had arrived yet, he would show the two specimens. On opening the abdomen they found a very localized cancer in the region of the pylorus, and two glands in the greater curvature immediately below the pylorus. In several respects the case was eminently suitable for removal,—a very circumscribed cancer, and only two glands. They proceeded to removal after the method recommended by Kocher. To those familiar with the system of Kocher he need not recapitulate the steps. Suffice it to say that they depended very largely on clamps for prevention of any escape of gastro-intestinal contents while isolating and removing the cancerous segment of the intestinal canal. The specimen removed was shown. He might say that, on account of the hurry they were in, they plunged it straight in spirit, and it made a most tremendous difference whether a tumour like this was put straight in spirit, or, as it should be done, placed for twenty-four hours in running water. The other pylorus now shown was placed in water for twenty-four hours, so that the muscle was completely dead, and no longer contracted in the spirit. But the specimen placed in a vital condition in the spirit contracted in an extraordinary way. What was a fair margin of healthy tissue round the cancer now appeared as if in dangerous proximity to the cancer. Having excised the tumour, they cut into the stomach; then, by means of Murphy's button, they united the posterior wall of stomach and duodenum. Although the operation was done on the 9th of May,—*i.e.*, forty-seven days ago, —the Murphy's button, which acted so well, had not yet been passed. Dr Dawson Turner had been trying to identify its position by skiagraphy, and although they had not been able to obtain photographs, they saw by the efflorescent screen that it was somewhere between the umbilicus and the ensiform cartilage,—*i.e.*, somewhere in the position in which it was originally placed in the patient. They did not despair of seeing this button again. Probably it would appear in the course of the next few months. They should certainly be more at ease when the button had been found. The patient was shown. It was a little difficult, Mr Thomson said, to realize now her condition before operation. She was then very much emaciated and helpless. Dr Gibson had already mentioned the great addition to her weight. The wound healed by first intention, and the abdomen was now firm and natural.

Dr Gibson added that he did not think that surgeons had been allowed a very fair chance in this matter, because most of them on the medical side had been inclined to wait until they could feel a tumour sometimes as big as their heads. It was advisable that, when they could infer from the symptoms that pyloric cancer was probably present, they should at once proceed to operation.

The Chairman said he thought the Society must congratulate Dr Gibson and Mr Alexis Thomson on the successful diagnosis and treatment of this very interesting case.

3. *Mr Alexis Thomson* then showed a patient after REMOVAL OF SECOND DIVISION OF FIFTH NERVE (by preliminary resection of malar bone) for epileptiform neuralgia. This was, he said, quite a characteristic case of severe trigeminal neuralgia. For fully two years this man's life had been made miserable by really very severe epileptiform neuralgia coming on in spasms, which absolutely incapacitated him from doing anything, occurring at frequent intervals, sometimes three or four in the day, and were associated with convulsions of the facial muscles,—regular convulsive type of facial neuralgia. As the neuralgia was mainly confined to the distribution of the second division of the fifth, they determined to remove that very thoroughly, and resolved, in consultation with his friend Mr Harold Stiles, to follow out the method described very fully in Kocher's text-book, viz., to expose this nerve by reflecting the malar bone. The malar bone was detached from its surroundings on all its aspects save the posterior. They turned it right out in this position, so that they could trace up the superior maxillary division of the fifth right back to the foramen rotundum. They divided it, and removed it from the face as far as desired. The patient was for the present completely relieved, but it was done only a few months ago, and they did not know if it would be permanent. There was no anæsthesia in the area of distribution of the nerve. He had still tactile

sensibility. He (Mr Thomson) was a little disappointed with the appearance of this patient. The wound healed straight off, and on removing the collodion the appearance was very good,—not any more than one of the natural lines on the face; but since the patient had been in the country, evidently from consolidation of malar bone, the scar had become thickened, and there was distinct deformity, more than they expected, without, however, any drawing down of the eyelid.

4. *Dr Harry Rainy* showed a case of PARALYSIS AGITANS with some unusual symptoms. The disease, he remarked, began at a very early age, viz., thirty-three years, and the patient had now suffered from it for about thirteen years. His work exposed him to toxic vapours for some time before the disease came on; but the immediate cause seemed to have been a fall from a ladder, 6 feet high. There was no obvious injury at the time, but he felt a good deal shaken, and continued to have pain in the dorso-lumbar region. About six months later tremor began. It advanced in the typical way,—arms first affected, afterwards legs. He now exhibited all the characteristic symptoms,—the tremor, the festinant gait, difficulty in turning, retropulsion, and sluggish rotation of the head. He had great difficulty in maintaining his balance in rising. As a rule, the tremor was increased very markedly by any activity on his part. Generally when he was sitting in the consulting-room his tremor entirely ceased unless something occurred to agitate him. Once he had performed a movement he could go on repeating it with comparative ease, and the exercise temporarily steadied him. For example, after having repeatedly swung his arms about, he could for a short time hold up his hand quite steadily; then tremor gradually set in, at first fine, but ultimately attaining a very considerable amplitude. Movements were more readily performed against opposition. In feeding himself he had great difficulty in using a teaspoon, with a full cup he could manage more easily, whilst he could lift a heavy beaker with a pound of pellets in it to his mouth without the least unsteadiness. Besides the typical slurring speech, he had several special difficulties in articulation. These were for the most part connected with labial consonants and with explosive letters. There was also another symptom apparently peculiar to this case. From time to time a little tremor started in the eyelids, and after it had gone on for some time the eyes shut entirely, and he was powerless to open them again till he raised the lids with his hand. If he raised the left lid with his hand the right eye would open of itself, but when he raised the right eyelid no effect was produced on the left eye, which continued closed. The levator palpebræ superioris was evidently affected. So far as could be ascertained, the eye symptom noted has never been recorded in any case of this malady.

III. EXHIBITION OF INSTRUMENTS.

Mr C. W. Cathcart exhibited O'DWYER'S & COLIN'S (PARIS) PATTERNS OF INTUBATION INSTRUMENTS. He said he thought the members of the Society would be interested in seeing these two instruments. In the first place he did not think intubation had been sufficiently recognised and practised in Edinburgh; and in the second place, seeing the terrible nature of diphtheria, he thought anything in the way of improvement ought to be published and known, and he thought intubation specially likely to be increasingly used since the introduction of antitoxin. In order to get the best instrument he got Mr Young to write to America and ask Dr O'Dwyer to send the instrument he recommended, and he had received this (details explained.) Afterwards, however, a friend of his who had been visiting the Hôpital pour Maladies des Enfants in Paris, so strongly recommended Colin's modification of O'Dwyer's tubes, that he (Mr Cathcart) got over this instrument, and was much struck with its greater simplicity. O'Dwyer's introducer and extractor had each three or four screws, but Colin's could be detached in two seconds without undoing any screws at all, and could be quickly and easily cleaned. The method of attaching the tube-rod to the introducer was also very much improved. There was no screw. It was done simply by a lever, and in a moment it was attached. It could very easily be taken to pieces, and after an operation for diphtheria could be thoroughly disinfected. The next case might be one of œdema of the glottis extending to larynx, and it might be of the utmost importance to introduce no organisms into the inflamed larynx. O'Dwyer's introducer was not easily cleaned. There was a tube which could not be dried without undoing some screws. This was a distinctly troublesome thing, as he himself had been made painfully aware. After using the instrument he boiled it, cleaned it, dried it, and put it away, and did not require it for several weeks. In the next case while driving rapidly along to intubate, he thought he would make sure that the instrument was working. He tried to push, and found it was caught so that he could not move it. There must have been a drop of water in the fitting, causing rust, which jammed it. With the help of a cutler, after half an hour's work, he got the rust off, got it oiled, and got it to work. Of course that would never occur with him again, but it entailed extra trouble, and was a risk to which the modification was not liable. The case of O'Dwyer's was leather, to which dirt might cling. The other was metal, which could be thoroughly cleansed. Colin's had a shorter tube. The method of extraction used by him in the Paris hospitals was a beautifully simple one. He did not extract. He simply put his thumb on the child's larynx and pushed the tube out, *i.e.*, "expressed."

IV. ORIGINAL COMMUNICATIONS.

1. *Mr A. G. Miller* read a paper on THE CAUSE OF MUSCULAR ATROPHY IN TUBERCULAR JOINT DISEASE, which appeared at page 220 of this Journal.

The President said they would be glad to hear remarks on Mr Miller's paper.

Mr Cathcart said that as Mr Miller had mentioned his name in speaking of one of his lines of argument he might perhaps say a word or two about this very interesting paper. He personally did not feel that they had worked out the possibilities of non-use, and until they had fully worked that out he did not think they need bring forward a reflex vaso-constriction. As to non-use, what he meant was this,—That when any part of the body was affected which had a sensory supply, there seemed to be a reflex inhibition of that part through the nervous system. Physicians would probably corroborate this when he asked if it was not the case that when a patient had pleurisy or pneumonia, that side of the thorax did not move with the same freedom as the opposite side; or that in peritonitis the abdominal respiration was affected. The movements of a joint, too, were affected when the joint was diseased. This reflex condition was not one that the patient was necessarily aware of, nor was it under control. A child lame with tubercular knee joint might at first suffer nothing, and was often not aware of anything wrong; but the surgeon found wasting of muscle and a stiff joint. He thought that until they had excluded this possible effect of reflex inhibition of the muscles acting on this joint and associated with it, they did not require another theory. At the same time he thought it required a great deal of very minute observation to be quite sure about reflex want of use. If a healthy joint was put on a splint, there being no reflex inhibition the patient moved it when he could. Anything that brought on reflex vital inhibition was more efficient for disuse than an actual splint. With regard to the question of arterial contraction, it seemed to him excessively difficult. If a patient had an anchylosed or amputated limb, apart from any disease the muscles at once atrophied, and so did the arteries, *e.g.*, after Syme's amputation there was no further use for the gastrocnemius, and all the muscles and arteries from the knee downwards atrophied without any possibility of reflex affection by any inflamed part. One other point. Mr Miller said that irritation caused arterial contraction. Two or three difficulties were involved in that. The irritation was in the joint, but the contraction was in connexion with muscles. There was nothing to show that the irritation had any effect on the muscles at a distance from the joint, when it did not produce contraction. One certain thing in connexion with inflammation was that the vitality of the tissues was interfered with,—*i.e.*, the tissues were irritated, and one of the first changes was dilatation of bloodvessels, and Mr Miller himself said that septic inflammation produced congestion, but tubercular irritation produced contraction. Now, septic poison was as much an irritant as tubercular. One other difficulty was that he (Mr Cathcart) was not quite sure that tubercular joints were so very anæmic. One of the symptoms they trusted to was called "white swelling." Relative to other forms of swelling it might be so. But another of the symptoms they trusted to was heat of the joint as compared with that of the opposite side. If one examined a recently amputated joint one was struck with many parts of it being unduly vascular. But he knew it was very easy to criticise, because the subject was exceedingly difficult. He thought they were much indebted to Mr Miller for having brought such a thoughtful and interesting paper before them.

Dr Gibson said there was just one question he was going to address to Mr Miller, and that arose out of a point which had just occurred to him with reference to this very interesting paper. He had personally observed that while in cases like that of this youth's leg there was atrophy of osseous textures as well as of soft parts, if they happened to have a tubercular affection of the sheaths of the tendons, for instance, they had a very considerable amount of atrophy of muscles, but no atrophy of bones at all. He would like Mr Miller to explain that conundrum to them, because it seemed to him it bore on this point. He was sure any one could vouch for the accuracy of that statement. He would be inclined to explain it in this way, along the lines laid down by a paper of the late lamented Dr Ross of Manchester on the segmental distribution of the nervous system. He thought it was extremely probable that the effect was produced by irritation of some sort, probably arising from a toxin formed by tubercle bacilli. That this was in accordance with the theory of the segmental distribution applied to every texture implicated,—in the one case bones and muscles, in the other muscles alone affected. That, it seemed to him, might possibly throw a little light on this condition. Without trespassing further on the time of the Society, he wished to bring it to Mr Miller's attention.

Mr Miller, in reply, said that with regard to Mr Cathcart's remarks he had tried to guard himself. He had said that he did not look upon this vascular contraction as the only cause. It did not exclude want of use. In fact he mentioned as one of Thoma's factors the want of use. But he had noticed a fact which showed that want of use could not be the cause of muscle atrophy in tubercular joint disease. He had frequently seen cases of tubercular joint disease with atrophy that had distinctly improved inside a plaster case. The muscle atrophy had certainly not got worse. In fact, in some cases he thought the muscles showed improved nutrition,—*i.e.*, provided the joint got better. As regards the reflex theory, he took it for granted that it was admitted that atrophy was due to reflex action. Charcot took it for granted all through his lectures. And, curiously, he got quite a new light on reading Charcot's remarks on the subject. Charcot attributed the discovery to John Hunter. He had been looking up John Hunter's works, but could not get any reference to it. With regard to the other point, of course dilatation of the bloodvessels took place afterwards; but Thoma, in referring to this subject, spoke about contraction occurring as the result of irritation, and Charcot spoke of joint disease causing atrophy. He (Mr Miller) was piecing the two things together—perhaps rather unfairly. He did not say that tubercular disease caused anæmia, but was associated with anæmia. Of course there were vascular conditions in every inflammation. He thought Dr Cathcart's remarks might explain Dr Gibson's. The reason why atrophy occurred in tubercular affections of sheaths of tendons was that the muscles were so very thoroughly thrown out of action. They had to be completely rested. At the same time there might be some toxic effect of the tubercle bacillus products.

2. *Dr Byrom Bramwell* and *Mr Harold J. Stiles* described a CASE OF DEEP-SEATED TROPICAL ABSCESS OF THE LIVER, TREATED BY TRANSTHORACIC HEPATOTOMY; RECOVERY.

Surgeon-Major Black said that some time ago he met with a case of an invalid soldier very similar. It was in the days before antiseptics and drainage-tubes were in use. It was a large abscess, very chronic, diagnosed beforehand in consultation. There was protrusion of right hypochondrium, and between the ribs as well, the liver coming below the cartilaginous border. There was scarcely any doubt about the nature of the disease, and, after due consultation, operation for evacuation was decided upon, and he introduced a canula below the border of the cartilages into the cavity in the liver, and in due course followed a flow of pus through the canula. This part of it was altogether very successful, and everything went right for a few days. The canula was inspected every day. The flow of pus went on regularly. At last events took a turn, and had there been antiseptics in those days, a drainage-tube and dressings would have been of service. The hard canula was still kept in, tied down by tape, and so on. By-and-by pus began to ooze along outside of the canula. They thought peritonitis was impending. This turned out to be the case, and the patient died of peritonitis. There was no superficial hepatitis, no costal pleuritis. They had not reckoned on non-adhesion of the liver all over it. Pus therefore had escaped into the peritoneum alongside the tube. In this case the abscess was more towards the border of the liver, so that it had easy access to the peritoneum. Military surgeons in India had these cases very frequently, and nowadays it was a very successful operation under antiseptics.

Dr Leith said he would like to convey his congratulations to Drs Bramwell and Stiles for bringing forward such an excellent illustration of the more fortunate results which one now occasionally met with, more frequently than in the past, in cases of hepatic abscess. Few of them could presume to have had much experience in this country of this rare condition. At the same time, the experience of the past and the literature were always open to them, and therefore they were at liberty to judge of this case according to these lights. He thought they would agree that nothing had been left undone in the diagnosis and treatment of this case. He might ask Dr Bramwell if, in excluding malaria, he had examined the blood for organisms, as that was necessary besides the negative point, viz., the absence of benefit from quinine. He should like to allude to the increase in medical knowledge within recent years with regard to hepatic abscess. The books of a few years ago told them that hepatic abscess, when treated artificially, was not nearly so successful as when allowed to find a drain for itself; and further, that when pus was formed the time for active interference was gone by. When they found such extraordinary statements made by Indian surgeons, to whom they looked for information on the subject, they were delighted to find justification for the newer progressive statements now made, to the effect that hepatic abscess taken as early as in this case was not such a serious condition. He (Dr Leith) believed that quite 50 per cent. were followed by recovery. This case was a perfectly classical one in almost every point. The early resort to aspiration was to be highly commended. He had spoken to an Indian surgeon—he was sorry he did not see him there to-night—on this question, who told him he never failed to aspirate early. When he excluded other lesions, he never failed to use something like 6 feet of aspirating needle before giving up the search for pus. He selected the seventh or eighth interspace, usually in the anterior axillary line, entered the aspirator inwards, then turned it upwards. If he found nothing, he re-inserted it in various directions before complete withdrawal, so that there was only one puncture through the chest wall and capsule of the liver. If he still got nothing, he tried the left lobe from the front in the same way. Dr Leith illustrated the procedure by sketches on the black board. That was a pretty extensive procedure, and he said he never had any harm resulting from it. There was no doubt that the only danger was hæmorrhage. That had happened, and was not to be entirely excluded. Only the superficial and not the interior hæmorrhage was to be feared. So far as the destruction of liver substance was concerned, they had far more liver than they needed, and could quite afford to destroy as much as that without any harm whatever. Let them adopt, as Mr Stiles had here done, the golden rules of early incision, free drainage, and complete asepsis, and the future would record still better results than the past had done.

Surgeon-Captain J. Chaytor White said that he was not the Indian surgeon Dr Leith had referred to. He had had no experience of internal hæmorrhage. The operation they always did now was free opening and free drainage.

Dr Russell said he would like to say a word before this discussion closed, simply to support what had already been said with reference to the necessity of rather fearless exploration of the liver by means of the aspirating needle. He would almost like to ask Dr Bramwell why he delayed so long in exploring this case. The diagnosis, on his own showing, was quite without doubt. He would like to ask Mr Stiles why he postponed. When they got a surgeon to see a case in hospital he had for some reason or other a hesitation about putting an aspirating needle into the human body. As a physician he had not had that hesitation, and he could remember one case of this kind, when he was house-physician at Wolverhampton seventeen or eighteen years ago, they aspirated at least six or seven times in the liver without any injury whatever, and without expecting any injury from it. His rule certainly since then had been somewhat fearlessly to work with his aspirator and with its needle, and he must say, in spite of all his admiration for the beauty of the record of this case and for the very excellent result, he was surprised at the hesitancy shown both by Dr Bramwell and Mr Stiles in the practical application of that most useful instrument.

Dr Bramwell, in reply, said that the blood ought to have been examined. Personally he had never seen the malarial organism, though notwithstanding his friend Dr Laurie's recent criticism, he certainly believed in its existence. With regard to Dr Russell's criticism, he might say that when he first saw the case on October 8, although he thought it was highly probable that there was an abscess, yet he thought it better to try the effect of larger doses of quinine before operating. He did not think that by the delay of a fortnight anything was lost. At the end of that fortnight, as the patient was no better, Mr Stiles, who was asked to see the case, with the object of puncturing the liver, thought that, from the surgical point of view, it would be better to wait in order to get some clue as to the position of the abscess. He fully admitted that one could puncture the liver with a clean aspirating needle without any danger; that was acknowledged.

Mr Stiles said he desired to thank the Society for the way in which they had received this case. His feeling was that the patient was not losing ground. He was a man of very strong physique, and was able to walk, and a fortnight had not made much difference in the past, and was not likely to. His second reason for delay was this. His teachers had impressed on him the importance of opening abscesses at the time of aspiration. There was no enlargement of the liver, and he had no means of localizing the depth and situation of the abscess. There was always the risk of extensive hæmorrhage. He thought they gained by waiting rather than lost by it.

Surgeon-Captain White said that for diagnostic purposes puncture had been done on a certain day, and operation, at most, twenty-four hours later. It had not been done at time of puncture. Of course, as Dr Bramwell and Mr Stiles said, the diagnosis was undoubtedly obscure in this case. That was a sufficient reason for delaying the puncture.

3. *Dr James Ritchie* described a case of GENERAL SECONDARY CANCER OF THE BONES (OSTEOMALACIA CARCINOMATOSA). The Pathology of the case, with Microscopic Preparations and Drawings, was described by *Dr Purves Stewart.* This paper appeared at page 208 of this Journal.

Dr Russell said he considered this case one of very great interest indeed, and the specimens were very beautiful. The question of bone infection was a very interesting and very important one, and he would regret not to say a few words. This case was important, because it showed clearly and definitely the existence of this condition beyond any question or cavil, and the specimens were so beautifully prepared that no histologist would for a moment doubt that the case was one of cancer of bone. He would like to know if there had been any tenderness, more especially in the ribs. He was much surprised to see that there was no enlargement of bone along with this extraordinary destruction of bone.

Mr Cathcart said that he shared Dr Russell's great interest in this paper. It had been well worked out both on the histological and clinical sides. He never thought that anybody doubted that there was such a thing as cancer of the bones. Apart from reservations as to its frequency and general dissemination, he thought that had not been recognised sufficiently, judging from what Dr Ritchie had told them. In reference to the question Dr Russell had raised as to enlargement of bones in this condition, there was one point that had struck him, looking at tumours of bones generally, quite apart from secondary deposits. The conclusion he came to in arranging bone tumours was that, if there was a central tumour growing sufficiently quickly, there would be absorption without enlargement. In those of intermediate rate of growth there was a fibrous capsule. In those growing more slowly there was enlargement and re-formation of bone on the outside of the tumour simulating expansion. In this case the tumour was growing so rapidly as to cause absorption without producing any "expansion" or re-development on the outside.

The Chairman referred to a sarcoma he had once exhibited to the Society, occurring primarily in bone, and affecting lungs and liver secondarily.

Dr Leith said he could not go into the subject at this late hour, but he had followed the description and statistical history with great interest. The case had been admirably worked up. He could not altogether agree with Dr Ritchie in some of the positions he took up. He certainly could not allow that secondary cancer of bone was at all a rarity. In fact, he might almost say it was one of the commonest positions in which secondary cancer was found. The microscopic preparations showed very well the points which Dr Purves Stewart wished to demonstrate.

Dr Ritchie, in reply, said that what he did say was that, so far from being rare, it was very common to have secondary cancer of bones. The peculiar thing in this case was the general distribution of it. It was not common to find it so generally distributed, he believed, at any rate associated with softening so as to resemble a case of osteomalacia. Another point of great interest was the length of time which had elapsed since the removal of the primary focus. As to the frequency, he thought, with regard to Dr Russell's remarks, that when they got men like Volkmann, Rokitansky, and Rindfleisch all agreeing as to its frequency, it was not so rare as some men tried to make out. He had had occasion frequently to examine the patient's ribs, and had not found tenderness. There was no evidence of any intense congestion or proliferation to be seen in the microscopic sections. He believed that tenderness on pressure and pain in bones were associated commonly with congestion of the periosteum, and in this case they had no evidence whatever of any inflammatory action. This might explain the absence of tenderness. So far from there being enlargement of bones, they were smaller.

INFORMATION REGARDING MEDICAL EDUCATION AND EXAMINATIONS IN EDINBURGH.

The Royal College of Physicians of Edinburgh, The Royal College of Surgeons of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow, have made arrangements by which, after one series of Examinations, held in Edinburgh or in Glasgow, or in Edinburgh and Glasgow, the Student may obtain the Diplomas of the Three Co-operating Bodies.

The object of the Joint Examination is to give to Students facilities for obtaining, after one series of Examinations, the Qualifications in Medicine and Surgery of the three Scottish Corporations. Students passing the Final Examination, which is a qualifying Examination under the Medical Act, 1886, will be entitled to register three Diplomas under the Medical Acts, viz.—Licentiate of the Royal College of Physicians of Edinburgh, Licentiate of the Royal College of Surgeons of Edinburgh, and Licentiate of the Faculty of Physicians and Surgeons of Glasgow, and will be qualified for admission to the Army, Navy, and other Public Services.

Female Candidates are admitted to the Examinations for this Qualification equally with male Candidates; and throughout these Regulations the masculine pronoun is to be read as standing for Candidates irrespective of sex.

The three Co-operating Bodies grant their *Single* Diplomas only to Candidates who already possess another and opposite Diploma in Medicine or Surgery, as the case may be. Thus the Royal College of Physicians of Edinburgh may grant its Licence on Examination to Candidates already possessed of a recognised British, Irish, Indian, or Colonial Qualification in Surgery, and the Royal College of Surgeons of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow, may each grant its Licence on Examination to Candidates already possessed of a recognised British, Irish, Indian, or Colonial Qualification in Medicine. Copies of the Regulations for the Single Diploma of any of the Bodies may be had on application to the respective Secretaries.

N.B.—Under the provisions of the Medical Act of 1886, these *Single* Qualifications do not confer the right to registration, except as additional Qualifications by those already on the Register.

FOUR YEARS' COURSE.

GENERAL REGULATIONS.

Candidates who commenced medical study *before* 1st January 1892 shall be subjected to three Professional Examinations, herein called the First Examination, the Second Examination, and the Final Examination, to be conducted at separate times, partly in writing, and partly practically and orally.

Opportunities of entering for each of these Examinations will be presented six times in each year—four times in Edinburgh and twice in Glasgow. A Candidate at any of these Examinations may present himself either in Edinburgh or Glasgow, irrespective of the place at which he may have previously been examined.

Candidates who are unsuccessful, either at the First, the Second, or the Final Examination, or any part of these Examinations, shall be remitted to their studies for a period to be determined by the judgment of the Examiners, but not in any case less than three months.

Candidates may enter for all the subjects of an Examination at one time, and may pass either in all the subjects or in any in which they show adequate proficiency, or may enter for and pass in any division of subjects thereof, subject to the condition that the period and course of the entire Examination shall be certified as completed before the Candidate can enter for any division. A higher percentage of marks shall be required of Candidates entering for divisions. Candidates who have passed in any subject of an Examination under the divisional system shall not be at liberty to complete that Examination except under the divisional system.

Applicants for admission to any of the Examinations are required, on entering, to lodge with the Inspector of Certificates a schedule (forms for which are supplied) showing the Courses they have attended qualifying for admission, and if not entering for the whole Examination, must state which division of subjects they enter for.

A Candidate entering for the First or Second Examination may be reported by the Examiners as having passed the Examination "with Distinction," and a Candidate entered for the Final Examination may be reported as having passed "with Honours."

No Candidate can be held to be entered for any Examination till he has sent in the proper schedule, proved his course of study, and paid the appropriate fee.

The subjects of the Second Professional Examination should, as far as possible, be studied only after the First Examination has been passed; and similarly, the subjects of the Final Examination should, as far as possible, be studied only after the Second Examination has been passed. By adhering to this course the student will have his attention occupied by preparing for only one Examination at a time.

Candidates, qualified by having attended the necessary courses of study, may enter for two or more Examinations, to be passed successively at the same period, the condition being that failure to pass in all the subjects of the prior Examination precludes the Candidate from admission to the succeeding Examination. The necessary Schedule and Certificates must be lodged, and the fees for these respective Examinations paid, at the period of entering for the earliest of them. In the event of failure, the fee paid for any subsequent Examination to which a Candidate had been thereby precluded from admission shall on application be returned to the Candidate.

No Candidate shall be admissible to Examination who has been rejected on the subjects of the Examination by any other Licensing Board within the three preceding months.

A Candidate for the Second Examination admitted as having passed in the subjects of the First Examination at another Board shall pay the fee of Five Guineas in addition to the fee payable in respect of the Second Examination or any division thereof; and a Candidate for the Final Examination admitted as having passed in the subjects of the First and Second Examinations at another Board shall pay the fee of Ten Guineas in addition to the fee payable in respect of the Final Examination or any division thereof.

The following are the Names and Addresses of the Inspectors of Certificates :— In Edinburgh :—Mr James Robertson, Solicitor, 1 George Square. In Glasgow :—Mr Alexander Duncan, B.A., Faculty Hall, 242 St Vincent Street. All communications regarding this Board should be made to one of these Inspectors.

In applying for a copy of the Regulations, Candidates are requested to say whether the date of commencement of Medical Study was *before* or *after* 1st January 1892.

The following are the General Medical Council's Requirements for the Preliminary Examination of Medical Students :—

All Medical Students must register in the Medical Students' Register of the General Medical Council before they can be admitted to any Professional Examination. Whenever they have passed the Preliminary Examination in the required subjects, and commenced Medical Study at a recognised Medical School, or at a recognised University or Teaching Institution where subjects of the Medical Course are taught, they should register not later than fifteen days from the commencement of study, and should not neglect this requirement.

Students who commenced Medical Study *before* January 1st, 1892, shall have previously passed (at one or more Examinations) in the subjects of General Education, as follows :—1. English Language, including Grammar and Composition ; 2. Latin, including Grammar, Translation from specified Authors, and Translation of easy passages not taken from such Authors ; 3. Elements of Mathematics, comprising (*a*) Arithmetic, including Vulgar and Decimal Fractions ; (*b*) Algebra, including Simple Equations ; (*c*) Geometry, including the first book of Euclid, with easy questions on the subject-matter of the same ; 4. Elementary Mechanics of Solids and Fluids, comprising the Elements of Statics, Dynamics, and Hydrostatics ; 5. One of the following optional subjects :—(*a*) Greek ; (*b*) French ; (*c*) German ; (*d*) Italian ; (*e*) any other Modern Language ; (*f*) Logic ; (*g*) Botany ; (*h*) Zoology ; (*i*) Elementary Chemistry.[1]

PROFESSIONAL EXAMINATIONS.

First Examination.—Subjects : (1) Chemistry ; (2) Elementary Anatomy and Histology. Fee, £5, 5s.

Second Examination.—Subjects : (1) Anatomy ; (2) Physiology ; and (3) Materia Medica and Pharmacy. Fee, £5, 5s.

Final Examination.—Subjects : (1) Principles and Practice of Medicine (including Therapeutics, Medical Anatomy, and Pathology), and Clinical Medicine ; (2) Principles and Practice of Surgery (including Surgical Anatomy and Surgical Pathology), and Clinical Surgery ; (3) Midwifery and Gynecology, Medical Jurisprudence and Hygiene. Fee, £15, 15s.

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[1] Students who have passed in all the above subjects, with the exception of Mechanics, may commence study, and when they do pass in Mechanics they may be registered, and their registration antedated.

FIVE YEARS' COURSE.

Students who commence Medical Study *after* January 1st, 1892, shall have previously passed in the subjects of General Education, as follows:—1. English Language, including Grammar and Composition; 2. Latin, including Grammar, Translation from specified Authors, and Translation of easy passages not taken from such Authors; 3. Mathematics, comprising (*a*) Arithmetic; (*b*) Algebra, as far as Simple Equations, inclusive; (*c*) Geometry, the subject-matter of Euclid, Books I., II., and III., with easy deductions; 4. One of the following optional subjects:—(*a*) Greek; (*b*) French; (*c*) German; (*d*) Italian; (*e*) any other Modern Language; (*f*) Logic.

The entire Examination must be passed *at one time*, except in the case of Examinations passed for graduation in Arts of any of the Universities recognised, or in the case of students who have, prior to January 1st, 1892, passed in part of a recognised Preliminary Examination.

No fee is payable for Students' Registration, and Registration when once effected does not require to be repeated in any succeeding year.

Forms of application for Registration may be obtained from James Robertson, Esq., Registrar of the Branch Council for Scotland, 1 George Square, Edinburgh.

The following Testimonials of having passed the Preliminary Examination in General Education are accepted by the Licensing Authorities, and entitle to Registration as Medical Students by the General Medical Council:—

(1.) UNIVERSITIES OF THE UNITED KINGDOM.

Oxford.—Final Examination for a Degree in Arts; Responsions (Certificate to be supplemented by others showing that the required Mathematical subjects have been passed in); Moderations;* Local Examinations (Senior);* Local Examinations (Junior).†

Cambridge.—Final Examination for a Degree in Arts; Previous Examination;* General Examination;* Local Examination (Senior);* Local Examination (Junior);† Higher Local Examination.*

Durham.—Final Examination for a Degree in Arts; Preliminary Examination in Arts for Graduation in Medicine and Science;* Examination for Certificate of Proficiency.†

Oxford and Cambridge Schools' Examination Board.—Lower Certificate;† Higher Certificate.*

London.—Final Examination for a Degree in Arts or Science; Matriculation Examination.†

Victoria University.—Preliminary Examination;† Final Examination for a Degree in Arts or Science; Entrance Examination in Arts.†

University of Wales.—Matriculation Examination:† Final Examination for a Degree in Arts.

Edinburgh.—Final Examination for a Degree in Arts; Preliminary Examination for Graduation in Medicine and Surgery; Preliminary Examination for Graduation in Arts or Science;† Local Examination (Senior Certificate);* Local Examination (Junior Certificate).†

Aberdeen.—Final Examination for a Degree in Arts; Preliminary Examination for Graduation in Medicine and Surgery; Preliminary Examination for Graduation in Arts or Science;† Local Examination (Senior Certificate);* Local Examination (Junior Certificate).†

Glasgow.—Final Examination for a Degree in Arts; Preliminary Examination for Graduation in Medicine and Surgery; Preliminary Examination for Graduation in Arts or Science.†

St Andrews.—Final Examination for a Degree in Arts or Science; Preliminary

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* Certificates to include the subjects required for Registration.

† Certificate to include the subjects required for Registration, and which must be passed at one time.

Examination for Graduation in Medicine and Surgery; Preliminary Examination for Graduation in Arts or Science;† Final Examination for the Diploma of L.L.A.

Dublin.—Final Examination for a Degree in Arts; Public Entrance Examination;† Examination for the First, Second, Third, or Fourth Year in Arts (Certificate to be signed in the approved form by the Medical Registrar of the University).

Royal University of Ireland.—Matriculation Examination; Final Examination for a Degree in Arts or Science.

(2.) OTHER BODIES NAMED IN SCHEDULE (A) TO THE MEDICAL ACT (1858).

Royal Colleges of Physicians and Surgeons of Ireland.

Note.—The General Medical Council have recommended this Body to cease holding Preliminary Examinations.

(3.) EXAMINING BODIES IN THE UNITED KINGDOM NOT INCLUDED IN SCHEDULE (A) TO THE MEDICAL ACT (1858).

Educational Institute of Scotland.—Preliminary Medical Examination (conducted on behalf of the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Faculty of Physicians and Surgeons of Glasgow).†

College of Preceptors. — Examination for a First Class Certificate, or Second Class Certificate of First or Second Division;† Preliminary Examination for Medical Students.†

Intermediate Education Board of Ireland.—Junior or Middle Grade Examination;† Senior Grade Examination.*

Scotch Education Department.—Leaving Certificates in each Grade and in Honours. All the subjects in the Lower Grade Certificates must have been passed *at one time*, but for the Honours and Higher Grade Certificates they may be passed at different times.

(4.) INDIAN, COLONIAL, AND FOREIGN UNIVERSITIES AND COLLEGES.

The Certificates from the following Bodies must contain evidence that the Examination passed included all the subjects required by the General Medical Council, and must state that all the subjects were passed in *at one time.* Copies of the form of the required Certificate will be supplied by the Registrar of the Council for the purpose. In the case of Natives of India or other Oriental countries, whose vernacular is other than English, an Examination in a classic Oriental language may be accepted instead of an Examination in Latin.

Universities of Calcutta, Punjab, and Allahabad.—Entrance Examination.

Universities of Madras and Bombay.—Matriculation Examination.

M'Gill College, Montreal; Bishop's College, Montreal.—Matriculation Examination.

College of Physicians and Surgeons of the Province of Quebec.—Matriculation Examination.

University of Toronto; Trinity College, Toronto; Queen's College, Kingston; Victoria College, Toronto; Western University of Ontario; and College of Physicians and Surgeons of Ontario.—Matriculation Examination.

University of Manitoba.—Preliminary and Previous Examinations.

University of Fredericton, New Brunswick.—Matriculation Examination.

University of King's College, Windsor, Nova Scotia.—Matriculation Examination.

Newfoundland Medical Board.—Preliminary or Matriculation Examination.

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* Certificates to include the subjects required for Registration.

† Certificate to include the subjects required for Registration, and which must be passed at one time.

University of Mount Allison College, New Brunswick, Canada.—Matriculation Examination.

College of Physicians and Surgeons of New Brunswick.—Matriculation Examination.

Dalhousie College and University, Halifax, Nova Scotia.—Matriculation Examination.

Provincial Medical Board of Nova Scotia.—Preliminary Examination.

University of Melbourne.—Matriculation Examination.

University of Sydney.—Matriculation Examination; First Year Examination in Arts; Senior Public Examination; Entrance Examination for Medicine and Science.

University of the Cape of Good Hope.—Matriculation Examination.

University of Adelaide.—Senior Public Examination.

Codrington College, Barbados.—Examinations qualifying for a Degree in Arts at the University of Durham.

University of Tasmania.—Senior Public Examination.

University of New Zealand.—Preliminary Examination for Medical Students.

University of Otago, New Zealand.—Preliminary Examination for Medical Students.

Ceylon Medical College.—Preliminary Examination.

Germany and other Continental Countries.—The German Abiturienten-Examen of the Gymnasia and Realgymnasia; Examinations entitling to the French Diplomas of Bachelier ès Lettres and Bachelier ès Sciences; and other corresponding Entrance Examinations to the Universities.

Egyptian Government.—Secondary Education Certificate.

PROFESSIONAL EXAMINATIONS.

First Examination.—Subjects: (1) Chemistry; (2) Physics; (3) Elementary Biology. Fee, £5.

Second Examination.—Subjects: Anatomy and Physiology, including Histology. Fee, £5.

Third Examination.—Subjects: Materia Medica and Pharmacy, and Pathology. Fee, £5.

Final Examination.—Subjects: (1) Medicine, including Therapeutics, Medical Anatomy, and Clinical Medicine; (2) Surgery, including Surgical Anatomy, Clinical Surgery, and Diseases and Injuries of the Eye; (3) Midwifery and Diseases of Women and of New-born Children, and Medical Jurisprudence and Hygiene. Fee, £15.

The following pages contain a tabular abstract of the regulations of the various Licensing Boards, as well as a list of the Hospitals, Dispensaries, etc., attached to our Edinburgh Medical Schools; also the regulations for the Army, Indian, and Navy Medical Services. The space at our disposal does not allow of more detailed information. But, in point of fact, the regulations of all Licensing Boards now correspond much more closely than they used to do, and the regulations of the General Medical Council afford a key to the general requirements of all of them. For special information, application should always be made to the Secretaries of the Licensing Boards, and from whom printed Regulations may be had free on application; or, in the case of the Universities, recourse may be had to the published Calendars.

The *Preliminary Examinations* are usually held before the commencement, and at the end, of the Winter Session,—viz., in October, March, or April—sometimes also at the end of the Summer Session. The Professional Examinations in Universities are usually after the Winter and during the Summer Sessions; in Edinburgh, however, the first Professional is held in October as well as April. The other Licensing Boards' Examinations are held at quarterly periods.

COURSE OF STUDY REQUIRED BY THE VARIOUS BOARDS OF THE UNITED KINGDOM. (OLD REGULATIONS.)

	Age.	Anatomy.	Dissections.	Chemistry.	Practical Chemistry.	Materia Medica.	Physiology.	Surgery.	Practice of Medicine.	Midwifery.	Medical Jurisprudence.	Pathology or Morbid Anatomy.	Botany.	Natural History.	Practical Pharmacy.	Clinical Surgery.	Clinical Medicine.	Hospital Attendance.	Practical Midwifery.	Dispensary or Out-door Practice.	Vaccination.
	Years.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	
Edinburgh University, M.B. & C.M., . .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	3 mo.,* or 6 cas.	6	
University of Glasgow, M.B. & C.M., . .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	21	do.	6	
University of Aberdeen, M.B. & C.M., .	21	6	6	6	3	6	6	6	6	6	3		3	3	3	6	6	24	do.	6	
University of St Andrews, M.B. & C.M., .	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	do.	6	
London University, M.B., ...	21	6	12	6	1 crs.	1 crs.	6	6	6	1 crs.	1 crs.	1 crs.			1 crs.	2 yrs.	2 yrs.	4 yrs.	20 cas.	6	
University of Durham, M.B. & M.D., . .	21												3								
Dublin University, M.B., ...		6	6	6	3	3	3	6	6	6	3		3				9	21	6 mo.		
" " Surgical Diploma, .		12	18	6	3	6	18	12	6	6	3		3			27	27	27			
The Royal University of Ireland, . . .		12	12	6	3	6	12	6	6	6	3		3	3	3 mos.	12	12	24	3 mo.		
Royal College of Physicians, London, .	21	12	12	6	3	3	12	6	12	3	3	6	3		3	9	9	24	20 cas.		
Royal College of Physicians, Edinburgh,	21	6	6	6	3	3	6	6	6	3	3	3	3		3	3	6	24	6cases		
Royal College of Physicians, Ireland, .	21	6	12	6	6	6	6	6	6	6	6		6			6	21	27	6 mo.		
Royal College of Surgeons, Edinburgh, .	21	6	12	6	3	3	6	6	6	3	3	3			3	9	9	24	6 cas.	6	Cert.
Royal College of Surgeons, London, . .	21	12	12	6		3	12	12	6	3					3	27	9	33			Cert.
Royal College of Surgeons, Dublin, . .	21	18	18	6	6	3	18	18	6	3	3					18	9	27			
Faculty of Phys. and Surgeons, Glasgow,	21	12	12	6	3	3	3	6 or 12	6	3	3				3	6 or 12	6	24	6 cas.	6	Cert.
For Triple Qualification by Royal Colleges of Physicians and Surgeons of Edinburgh, and Faculty of Physicians and Surgeons of Glasgow, ...	21	6	12	6	3	3	6	6	6	3	3	3			3	9	9	24	6 cas.		
Society of Apothecaries, London, . . .	21	12	6	6	3	3	6		12	3	3	6	3		Appr.		27	27	20 cas.		9 mo.
Apothecaries' Hall, Ireland, ...	21	6	12	6	3	3	6	6	6	6	3		3		Appr.	9	18	27	20 cas.		

English Poor-Law Board.—Candidates for the appointment of Medical Officer are required to be registered under the Medical Act, and must be legally qualified to practise both Medicine and Surgery, in virtue of Diplomas or Licenses granted by competent legal authority in England, Scotland, or Ireland.

Information respecting exceptions to these regulations under various circumstances, and other details as to the order in which, according to some Licensing Bodies, the courses should be taken out, etc., must be obtained by consulting the published Regulations of the Colleges, etc. *Students should apply to the Secretary to each Board which they intend to pass for a detailed copy of its Regulations.*

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* In lieu of the above, the University of Edinburgh requires as an alternative, attendance on at least Twelve Cases of Labour under the superintendence of a registered Medical Practitioner.

MEDICAL SCHOOLS OF SCOTLAND, 1896-97.

WINTER SESSION.

SUBJECTS.	UNIVERSITY OF EDINBURGH.	SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH.	UNIVERSITY OF GLASGOW.	ANDERSON'S COLL. MED. SCHOOL, GLASGOW.	ST MUNGO'S COLLEGE, GLASGOW.	UNIVERSITY OF ABERDEEN.	UNIV. OF ST ANDREWS.	UNIV. COLLEG DUNDE
Anatomy, Systematic and Practical, with Demonstrations.	Prof. Sir W. Turner.	Dr J. R. Whitaker, Dr Jas. Musgrove, & Mr J. Hardie.†	Professor Cleland.	Dr A. M. Buchanan.	Prof. Kent and Demonstrators.	Professor Reid.	Dr James Musgrove.	Prof. J Yule Macka
Physiology* and Advanced Practical Physiology.	Professor Rutherford.	Dr Noël Paton.	Professor M'Kendrick.	Dr D. Campbell Black.	Prof. John Barlow.	Professor M'William.	Professor Pettigrew.	Prof. Wa mouth Reid.
Chemistry, and Practical Chemistry.	Professor Crum Brown.	Dr Macadam, Mr King, Mr I. Macadam, Dr Aitken, and Dr Readman.†	Professor J. Ferguson.	Professor J. Robertson Watson.	Professor T. R. Marshall.	Prof. Japp.	Professor Purdie.	Profess Jame Walke
Materia Medica & Therapeutics.	Professor Fraser.	Drs Craig, Stockman, & Gillespie.†	Professor Charteris.	Dr R. Barclay Ness.	Prof. John Dougall.	Professor Cash.	Dr W. H. De Wytt.	...
Practice of Medicine.	Professor Sir Thomas Grainger Stewart.	Drs Wyllie. James, Affleck, Bramwell, G. A. Gibson, Philip, and Graham Brown.†	Professor Gairdner.	Dr S. Gemmell.	Professor Robertson.	Professor Finlay.	...	...
Surgery.	Professor Chiene.	Mr Caird, Hodsdon, Shaw M'Laren, A. Thomson, and D. Wallace.	Professor William Macewen.	Dr T. Kennedy Dalziel.	Prof. Clark.	Professor A. Ogston.	...	Dr MacEw
Midwifery, etc.	Professor Simpson.	Drs Milne Murray, Haultain, & Ballantyne.	Professor Murdoch Cameron.	Dr Edgar.	Dr J. K. Kelly.	Professor Stephenson.	...	...
Physics.	Dr Knott.	Dr Dawson Turner.	M. Maclean, M.A.	Professor Bennett.	Prof. Blyth.	Prof. Niven (in Summer.)	Professor Butler.	Profes Kuene
Zoology and Practical Zoology.	Professor Ewart.	Mr J. Arthur Thomson.	Professor Young.	Dr George Bell Todd.	Professor Malcolm Laurie.	Professor A. Nicholson.	Professor M'Intosh.	Profes D'Ar Thomp
Practical Botany.	Professor Bayley Balfour.	Mr A. N. M'Alpine & Mr Turnbull.	Professor Bower (in January).	...	Professor Swanson (in Summer).	Prof. Trail (Practical).	Mr Robertson.	Profes Gedd
Pathology.	Professor Greenfield.	Dr A. Bruce, Dr W. Russell, and Dr Leith.	Professor J. Coats.	At Royal or Western Infirmary.	Professor Workman.	Professor Hamilton.	...	...
Clinical Medicine.	Profs. Sir T. G. Stewart, Fraser, Greenfield, and Simpson on Diseases of Women.	Drs Wyllie, Affleck, Smart, and James. Dr H. Croom for Diseases of Women.‡	Prof. M'Call Anderson and Prof. Gairdner.	Physicians of the Royal or Western Infirmary.	Prof. D. C. M'Vail and Physicians of the Royal Infirmary.	Prof. Finlay and Drs Fraser and Blaikie Smith.	...	Dr A. Stalk and l J. Mac Why
Clinical Surgery.	Professor Annandale.	Mr Duncan, Mr Miller, Dr P.H. Maclaren, and Dr MacGillivray.†	Prof. George Buchanan and Prof. Macewen.	Surgeons of the Royal or Western Infirmary.	Prof. Knox and Surgeons of the Royal Infirmary.	Drs Ogston, Garden, and Booth.	...	Drs M Ewan Grei
Medical Jurisprudence and Public Health.	Prof. Sir Douglas Maclagan (in Summer).	Sir Henry D. Littlejohn.	Professor Simpson (in Summer).	Hygiene and Public Health: Dr J. Pearson Munro and Prof. J. Robertson Watson. Medical Jurisprudence: Dr R.M. Buchanan	Professor Glaister and Dr John C. M'Vail.‡	Professor Hay (in Summer).	...	Dr Temp man

* This course is equivalent to that given under the name of General Anatomy and Physiology in the English Schools. Special schedules are issued by the London Boards for their Scotch Students, which should always be inquired for.

† These are not conjoint courses, but separate ones by the gentlemen named.

‡ This is a joint course.

In the University of Edinburgh, during the Winter Session, in addition to the lectures given by the Professors on the various subjects, classes of Regional Anatomy, Practical Materia Medica (including Pharmacy), Practical Physiology, Practical Pathology, Experimental Pharmacology, Pathological Bacteriology, Vertebrate Morphology, and Comparative Embryology, are taught by the Professors, Lecturers, or Assistants in the respective subjects; lectures and clinical instruction are given on Diseases of Children, on Diseases of the Eye, and on Mental Diseases.

Lectures are given in the School of Medicine of the Royal Colleges, Edinburgh, during the Winter Session, on Anatomy, Chemistry, Physics, Natural History, Biology, Botany, Physiology, Materia Medica and Therapeutics, General Pathology and Morbid Anatomy, Surgery, Practice of Physic, Midwifery and Diseases of Women and Children, Medical Jurisprudence and Public Health, Diseases of Children, Vaccination, Diseases of the Ear, Throat, Eye, Skin, and Chest, Systematic and Clinical Gynæcology, Clinical Midwifery, Diseases of the Tropics and Climatology, and Diseases of Children.

Courses on the above subjects are also given in the Summer Session, with the addition of Insanity, Physical Diagnosis, Medical Electricity, Laryngology, and Medical Ophthalmology.

There are Special Classes for Women on the above subjects in both Winter and Summer Sessions.

In connexion with the University of Glasgow, Dr Yellowlees lectures on Mental Diseases, and Dr T. Reid on Diseases of the Eye, both in Summer. Dr Walker Downie lectures on Diseases of Throat and Nose, and Dr Barr on the Ear. Operative Surgery is taught during the Summer Session in the University of Glasgow by Professor Macewen.

Lectures are given in St Mungo's College, Glasgow, during the Winter Session, on Advanced Embryology by Prof. Laurie; on Gynæcology by Dr Kelly; on Ophthalmology by Prof. Napier; and on Diseases of the Throat and Nose by Dr Fullerton.

Lectures are given in Anderson's College Medical School during the Winter Session, on Ophthalmic Medicine and Surgery by Dr Meighan; on Diseases of the Throat and Nose by Dr John Macintyre; on Aural Surgery by Dr James Erskine; and on Zoology by Dr G. Bell Todd. In the Western Medical School Dr A. Brown Kelly lectures on Diseases of the Throat and Nose, and Dr Freeland Fergus on the Eye.

In connexion with University College, Dundee, Clinical Instruction in Mental Diseases is given by Dr Rorie, Royal Asylum, Dundee, and lectures on Ophthalmology are given by Dr M'Gillivray.

MEDICAL SCHOOLS OF SCOTLAND, 1897.

SUMMER SESSION.

Subjects.	University of Edinburgh.	School of Medicine of the Royal Colleges, Edinburgh.	University of Glasgow.	Anderson's College Medical School, Glasgow.	St Mungo's College, Glasgow.	University of Aberdeen.
Practical Anatomy and Demonstrations.	Prof. Sir Wm. Turner.	Dr J. Ryland Whitaker, Dr J. Musgrove, and Mr John Hardie.	Professor Cleland.	Dr A. M. Buchanan.	Prof. Kent and Demonstrators.	Professor Reid.
Botany and Practical Botany.	Professor Bayley Balfour.	Mr A. N. M'Alpine and Mr Turnbull.	Professor F. O. Bower.	...	Prof. James Swanson.	Professor Trail.
Materia Medica and Therapeutics and Practical Materia Medica.	Professor Fraser.	Drs Craig, Stockman, and Lockhart Gillespie.*	Professor Charteris.	Dr R. Barclay Ness.	Professor Dougall (in Winter).	Professor Cash.
Midwifery and Gynæcology.	Professor Simpson.	Drs Croom, B. Hart, F. Barbour, J. H. Ferguson, and Sophia Jex-Blake.*	Professor Murdoch Cameron.	Dr Edgar.	Prof. James Stirton.	Prof. W. Stephenson.
Medical Jurisprudence and Public Health.	Professor Sir Douglas Maclagan.	Sir Henry D. Littlejohn.†	Professor Simpson.	Dr R. M. Buchanan.	Prof. Glaister and Dr J. C. M'Vail.‡	Professor M. Hay.
Practical Physiology, incl. Histology.	Professor Rutherford.	Dr Noël Paton.	Professor M'Kendrick.	Dr D. Campbell Black.	Prof. Barlow.	Professor M'William.
Practical Pathology.	Professor Greenfield.	Dr A. Bruce, Dr W. Russell, and Dr Leith.	Professor Joseph Coats.	At Royal or Western Infirmary.	Professor Workman.	Professor Hamilton.
Organic and Practical Chemistry.	Professor Crum Brown.	Dr Macadam. Mr King, Mr I. Macadam, Dr A. P. Aitken, and Dr Readman.*	Professor J. Ferguson.	Professor J. Robertson Watson.	Professor T. R. Marshall.	Professor Japp.
Physics.	Prof. Tait.	...	...	Prof. Bennett.	...	Prof. Niven.
Operative Surgery and Surgical Anatomy.	Professor Chiene.	Messrs Caird, Hodsdon, S. M'Laren, A. Thomson, and D. Wallace.*	Professor William Macewen.	Dr Dalziel.	Dr Whitson.	...
Mental Diseases.	Dr Clouston.	Drs J. B. Tuke & Macpherson.	Dr Yellowlees.	Dr Carswell.	Dr A. C. Clark.	Dr Wm. Reid.
Zoology and Practical Zoology.	Professor Ewart.	Mr J. Arthur Thomson.	Professor Young.	Dr George Bell Todd.	Prof. Malcolm Laurie (in Winter).	Professor Nicholson.
Clinical Medicine.	Profs. Sir T. G. Stewart, Fraser, Greenfield, and Simpson on Diseases of Women.	Drs Wyllie, Affleck, Smart, and James. Dr H. Croom for Diseases of Women.‡	Prof. M'Call Anderson and Prof. Gairdner.	Physicians of the Royal or Western Infirmary.	Prof. M'Vail and Physicians of the Royal Infirmary.	Physicians of the Royal Infirmary.
Clinical Surgery.	Professor Annandale.	Mr Duncan, Mr Miller, Dr P. H. Maclaren, and Dr MacGillivray.	Prof. George Buchanan and Prof. Macewen.	Surgeons of the Royal or Western Infirmary.	Prof. Knox and Surgeons of the Royal Infirmary.	Surgeons of the Royal Infirmary.

In the University of Edinburgh, during the Summer Session, lectures are given by the Lecturers on Regional Anatomy and Zoology; lectures and clinical instruction by the Lecturers on Diseases of Children, on Diseases of the Eye, and on Mental Diseases. In Glasgow University there are also classes of Practical Botany and Practical Natural History taught by the Professors of these subjects and their Assistants.

In connexion with St Mungo's College, during the Summer Session, Dr Adams will lecture on Surgical Diseases of Children; Dr Love on Otology; Dr Morton on Dermatology; and Dr M'Crorie on Bacteriology.

In connexion with Anderson's College Medical School, during the Summer Session, Dr Meighan will lecture on Ophthalmic Medicine and Surgery, Dr Carswell on Mental Diseases, and Dr Erskine on Aural Surgery.

In Aberdeen, Special Courses of Instruction are given during the Summer Session on Insanity, Dental Surgery, Diseases of Children, of the Eye, Ear, and Throat, of the Skin, in Fevers (City Hospital), Embryology, and Bacteriology.

* These are not conjoint courses, but separate ones.

† Sir Henry D. Littlejohn gives courses during both the Winter and Summer Sessions.

‡ This is a joint course.

⁂ For additional Summer Courses on special subjects, see the Prospectus of each School.

In connexion with the Summer Session of the Medical Schools in Scotland, instruction in Vaccination is given at the Royal Public Dispensary, Edinburgh, both Summer and Winter, by Dr Husband; in the Western Dispensary, by Dr Buist; and in the New Town Dispensary, by Dr Cadell; at the Royal Infirmary, Glasgow, on Mondays and Thursdays at 12 o'clock, by Dr Henderson; and in Aberdeen at the Vaccine Institution, by Dr M'Kerron.

Medical Psychology and Insanity are taught in Summer by Dr J. B. Tuke and Dr John Macpherson in Edinburgh; in Glasgow by Dr Yellowlees, Dr Carswell, and Dr A. C. Clark; and in Aberdeen by Dr Wm. Reid.

Practical Medicine and Physical Diagnosis by Dr James, Dr Affleck, Dr Gibson, Dr Byrom Bramwell, Dr Philip, Dr Wyllie, and Dr Graham Brown in Edinburgh, and in Aberdeen by Prof. Finlay and Assistant.

Diseases of Children by Mr J. Bell, Dr Burn Murdoch, Dr M. Dunlop, Dr John Thomson, and Dr Cumming in School of Medicine, Edinburgh; in St Mungo's College by Dr Adams, Glasgow; by Professor Stephenson, Drs Garden, Rose, and M'Kerron at Children's Hospital, Aberdeen.

Diseases of the Chest by Dr R. W. Philip in School of Medicine, Edinburgh.

Diseases of the Eye by Dr George Mackay and Dr W. G. Sym in School of Medicine, Edinburgh; Dr M'Kenzie Davidson and Dr Usher in Aberdeen; and by Dr Thomas Reid, Dr Meighan, Prof. Napier, and Dr Freeland Fergus in Glasgow.

Diseases of the Ear, Nose, and Throat, by Dr Kirk Duncanson, and Diseases of the Ear and Throat by Dr M'Bride in School of Medicine, Edinburgh; and of the Ear by Dr J. Kerr Love and Dr Erskine in Glasgow; of the Nose and Throat by Dr Macintyre in Glasgow; and in Aberdeen, Ear and Larynx Diseases by Dr M'Kenzie Booth.

Diseases of the Throat and Nose by Dr John Macintyre, Dr Fullerton, and Dr A. Brown Kelly in Glasgow.

Diseases of the Skin by Dr Allan Jamieson and Dr Stewart Stirling in School of Medicine, Edinburgh; in Aberdeen by Dr Garden; and in Glasgow by Professor M'Call Anderson and Dr Alex. Morton.

Dental Surgery by Dr W. H. Gray in Glasgow, and Dr Williamson in Aberdeen.

Laryngology and Medical Ophthalmology in Edinburgh by Dr John Wyllie.

Diseases of the Tropics and Climatology in Edinburgh by Dr R. W. Felkin.

Lectures on Public Health are delivered during the Summer Session in Aberdeen by Professor Hay; in School of Medicine, Edinburgh, by Sir Henry D. Littlejohn; in Glasgow by Prof. Simpson, Dr J. Pearson Munro, Prof. Glaister, and Dr J. C. M'Vail. A course of instruction in Bacteriology is given in Aberdeen by Prof. Hamilton.

Systematic Gynæcology in School of Medicine, Edinburgh, by Dr Halliday Croom and Dr Brewis; and in St Mungo's College, Glasgow, by Dr Kelly.

Clinical Gynæcology and Practical Midwifery in School of Medicine, Edinburgh, by Drs Croom, Barbour, and Brewis, and by Prof. Stephenson and Assistant in Aberdeen.

EDINBURGH ASSOCIATION FOR THE UNIVERSITY EDUCATION OF WOMEN.

Women Students attending the University of Edinburgh are invited to make use of the Rooms temporarily opened by the Association at 8 Hope Park Square. Facilities for study and the use of the Library are offered free of charge. Louisa Stevenson, *Hon. Secretary.*

EDINBURGH SCHOOL OF MEDICINE FOR WOMEN.

President.—H.R.H. THE DUCHESS OF FIFE.

This School was established in 1886, by members of the Executive Committee for Promoting the Medical Education of Women (founded in 1871), on the opening of the Examinations of the Conjoint Scottish Colleges to Women. In 1894 the School was recognised by the University of Edinburgh as qualifying for the Medical and Surgical Degrees of the University, and students partly educated elsewhere can keep in this School the "two years' residence" required by the University. It occupies premises in Surgeon Square, which are already of historic interest, having been built more than a century ago for a Medical School, and so used, with a short interval, ever since. Its lecture theatre, lighted from above and seated for about two hundred students, has been occupied in succession by Messrs Lizars, Allen Thomson, Lonsdale, Handyside, Spence, and a number of other distinguished men; and its lofty anatomy room is one of the best in Edinburgh. The classes have always been separate from those for male students, and the University has now intimated that no mixed classes will henceforth be recognised. For Clinical Teaching its Students have access to the Royal Infirmary, where 70 beds are set apart for the Clinical Instruction of Women, with periodical teaching also in special wards for Diseases of the Eye, Skin, etc. The Fees have been fixed on the lowest scale on which it is possible at the same time to adequately remunerate first-rate Lecturers, and to place the School on an ultimately self-supporting basis, viz., £100 for the whole curriculum at School and Hospital. Separate classes at University Fees, with a School Matriculation Fee. Several Scholarships are available for those needing such assistance. *Dean* of the School, Dr Sophia Jex-Blake. *Secretary*, Miss Cross, School of Medicine, Surgeon Square.

THE MEDICAL COLLEGE FOR WOMEN, 20 CHAMBERS STREET, EDINBURGH.

This College was founded and is conducted by the "Scottish Association for the Medical Education of Women," with the special object of affording to Women Students exactly the same facilities for Medical Study as are offered to men in the School of Medicine, Edinburgh. Since 1894 the Curriculum and Classes of the College have been specially recognised by the University of Edinburgh as qualifying for graduation in Medicine. *The Students receive their Clinical Instruction in the Royal Infirmary.* The arrangements for Teaching and the Fees charged are similar to those of the University and the School of Medicine. Generally speaking, the Regulations of those bodies may be considered as applicable to the Students of the College. All the Teachers in the College are duly qualified Lecturers of the School of Medicine, Edinburgh.

The College affords to women desirous of studying Medicine an opportunity of prosecuting a complete Course of Medical Study, or of attending any individual Class or Classes. Classes required for the Dental and Pharmaceutical Examinations may also be attended at this College. The Classes, with the exception of those in the Royal Infirmary, are open to any woman who chooses to attend them, whether studying Medicine or not. The University of Edinburgh Library is open to Women Students who enrol their names in a Book kept in the University for that purpose, and pay a fee of the same amount as the Matriculation Fee paid by Students of the University. *Secretary*, Miss H. F. Mackay.

QUEEN MARGARET COLLEGE, WOMEN'S DEPARTMENT OF THE UNIVERSITY OF GLASGOW.

This College became in 1892 the Women's Department of the University of Glasgow, by the transfer of its buildings, endowments, and government to the University on the promulgation of the Ordinance issued in that year, empowering the Courts of the Scottish Universities to make provision for the instruction and graduation of women. Its classes are taught by Professors of the University and other Lecturers appointed by the University Court; the curriculum, regulations, and fees are the same as those of the male students of the University, and the University Degrees in Medicine, Science, and Arts are open to women on the same conditions as to men. Full preparation is given in the College for these Degrees. In July 1894, for the first time in the history of any Scottish University, women students graduated in Medicine, degrees of M.B. C.M. having then been conferred by the University of Glasgow on two students of Queen Margaret College, one of whom obtained these with "High Commendation." Others graduated in 1895 and 1896, one of the latter taking Honours and passing second in the list of candidates, including men and women. Several have graduated in Arts.

A large new building, affording additional facilities for medical study, was recently added to the College, and was opened in November 1895. A Hall of Residence for students from a distance was opened in October 1894, and a considerable addition to it was built last year.

LIST OF HOSPITALS, DISPENSARIES, ETC., IN CONNEXION WITH THE MEDICAL SCHOOLS OF EDINBURGH.

Royal Infirmary, including Lock Hospital. (Three Wards are reserved for the Clinical Instruction of Women Students.) 740 Beds and 40 Cots. Visits daily from 11 till 2 p.m. Consulting Physicians, Dr George W. Balfour, Professor Sir Douglas Maclagan, and Dr Claud Muirhead. Physicians, Professors Sir Thomas Grainger Stewart, T. R. Fraser, and W. S. Greenfield; Drs John Wyllie, J. O. Affleck, Andrew Smart, and Alex. James; Prof. Simpson and Dr J. Halliday Croom (for Diseases of Women); Dr Allan Jamieson (for Diseases of the Skin). Assistant Physicians, Drs Byrom Bramwell, George A. Gibson, Alexander Bruce, R. W. Philip, William Russell, J. Murdoch Brown, Ralph Stockman, and George Lovell Gulland; Drs D. Berry Hart and A. H. Freeland Barbour (for Diseases of Women); Dr Norman Walker (for Diseases of the Skin). Consulting Surgeons, Dr Patrick Heron Watson and Mr Joseph Bell. Consulting Dental Surgeon, Dr John Smith. Extra Surgeon, Mr John Duncan. Surgeons, Professors Annandale and Chiene, Mr A. G. Miller, Dr P. H. Maclaren, and Dr C. W. MacGillivray. Assistant Surgeons, Messrs J. M. Cotterill, Charles W. Cathcart, Francis M. Caird, J. W. B. Hodsdon, J. Shaw M'Laren, David Wallace, and Alexis Thomson. Extra Ophthalmic Surgeon, Dr Argyll Robertson. Ophthalmic Surgeons, Mr George A. Berry and Dr George Mackay. Surgeon to the Ear and Throat Department, Dr P. M'Bride. Assistant Ophthalmic Surgeons, Dr W. G. Sym and E. E. Maddox. Assistant Surgeon to the Ear and Throat Department, Dr R. M. Johnston. Dental Surgeon, Mr Wm. Guy. Pathologists, Drs R. F. C. Leith and Robert Muir. Registrars,—*Medical*, Dr A. L. Gillespie; *Surgical*, Dr K. M. Douglas.

Convalescent House, Corstorphine. Surgeon, Mr Alex. Matthew.

Chalmers Hospital for the Sick and Hurt (Public and Private Wards). 40 Beds for medical and surgical patients. In Private Wards the patients are charged 5s. per diem for board. Minimum charge, £1, 1s. Physician, Dr Claud Muirhead. Surgeon, Dr P. Heron Watson. Resident Medical Officer, D. J. Graham, M.B., C.M. Secretary, J. Wilson Brodie, C.A., 13 Queen Street.

Royal Maternity and Simpson Memorial Hospital. 40 Beds; about 300 in-patients and 550 out-patients yearly. Consulting Physician, Dr Moir. Consulting Surgeon, Professor Annandale. Physicians, Professor Simpson, Drs Halliday Croom, Underhill, and Berry Hart. Assistant Physicians, Drs Freeland Barbour and Milne Murray. Secretary and Treasurer, Andrew Scott, C.A.

Royal Edinburgh Hospital for Sick Children. 96 Beds; number of patients for 1895, 12,892. Consulting Physicians, Dr George W. Balfour, Dr R. Peel Ritchie, and Prof. Sir T. Grainger Stewart. Consulting Surgeon, Professor Annandale. Surgeon, Mr Joseph Bell. Assistant Surgeon, Dr H. Stiles. Pathologist, Dr Alexander Bruce. Ordinary Physicians, Dr James Carmichael, Dr John Playfair, and Dr Burn Murdoch. Extra Physicians, Dr G. H. Melville Dunlop, Dr John Thomson, and Dr A. S. Cumming. Surgeon-Dentist, Dr John Smith. Ophthalmic Surgeon, Dr Argyll Robertson. Resident Physicians, Drs Harry H. Balfour and S. J. Aarons. Matron, Miss Piggott. Honorary Secretaries, Messrs Henry & Scott, W.S., 20 St Andrew Square.

ROYAL PUBLIC DISPENSARY AND VACCINE INSTITUTION. About 12,000 patients annually. Consulting Physician, Dr George Balfour. Consulting Surgeon, Sir Henry D. Littlejohn, M.D., LL.D. Medical Officers, Drs W. Husband, Andrew, P. Young, A. Black, Dunlop, Blaikie, Wallace, Haultain, Stiles, W. G. A. Robertson, and Hutchison. Midwifery and Diseases of Women, Drs Andrew, Young, and Dunlop. Vaccination, Dr W. Husband. Diseases of the Ear and Throat, Dr Blaikie. Mental Diseases, Dr J. Batty Tuke, senr. Apothecary, Mr W. Duncan. Clinique daily at 3 P.M. Vaccination, Wednesdays and Saturdays, 12 noon. Midwifery and Diseases of Women, Tuesdays and Fridays, 1 P.M. Laboratory, 3 P.M. and 7 P.M. Secretary, R. C. Gray, S.S.C. James Andrew, M.D., Secretary to the Medical Officers.

NEW TOWN DISPENSARY, 17 Thistle Street. About 10,000 patients annually. Medical Officers, Drs Dunlop, Boyd, Abernethy, Elder, Fowler, and Cameron. Acting Physicians-Accoucheur, Drs Wood and Thyne. Superintendent of Vaccination, Dr Cadell. Diseases of the Ear and Throat, Dr Moore. Diseases of the Eye, Dr Macdonald. Diseases of Women, Dr Brewis. Diseases of Children, Dr Thomson. Mental Diseases, Dr Batty Tuke, jun. Surgical Department, Dr Dowden. Clinique daily at 3 P.M. Vaccination on Tuesdays and Fridays at 12.

THE EDINBURGH PROVIDENT DISPENSARY, Marshall Street. Upwards of 12,000 patients annually. Consulting Physician, Dr Andrew Smart. Consulting Surgeons, Drs Joseph Bell and C. W. Cathcart. Gynæcology, Drs Berry Hart and Milne Murray, with Drs W. Fraser Wright and R. K. Young. Diseases of Skin, Dr Norman Walker. Diseases of Ear and Throat, Dr M'Kenzie Johnston. Diseases of Eye, Dr George Mackay. *In-Patients*—Drs Cattanach, Thyne, and Douglas Watson. Assistant Medical Officer, Dr G. E. Gabites. Out-door practice and Practical Midwifery daily. Surgical Instrument Maker, A. Young, Forrest Road. Janitor, T. Johnstone. Attendance at this Institution qualifies for the University of Edinburgh, the other Universities, and the Royal Colleges of Physicians and Surgeons.

WESTERN DISPENSARY, Chalmers Institute, Ponton Street, Fountainbridge. Chairman, James Simson. Acting Committee, Mrs Black, Miss Thomson, Miss M. Douglas, S. Henderson, Stair Kerr, Dr Bruce Bremner, Wm. Brown, A. Dickison, Dr Pringle, E. Mather, Wm. Manuel, J. Arnot, Rev. G. D. Low, M.A., J. S. Ferrier, Robert Simson, Miss Reid. Consulting Physicians, Dr A. Peddie and Dr Murdoch Brown. Consulting Surgeon, Mr Joseph Bell. Consulting Physician for Diseases of Women, Dr Croom. Physicians, Drs R. A. Fleming, John Stevens, and John Orr. Surgeon, Mr Alexis Thomson. Diseases of the Ear and Throat, Dr Logan Turner. Diseases of Women, Dr Ballantyne. Vaccination Officer, Dr J. B. Buist. Midwifery, Dr Ballantyne. Diseases of the Eye, Dr F. Reid Mackay. Assistant to Specialists, Dr Farquharson. Dispenser, A. T. Whyte. Secretary to Medical Board, Dr J. Murdoch Brown. Treasurer, James Simson, 51 Manor Place. Open daily from 3.45 to 4.45 P.M. Diseases of Women, Monday and Thursday, 4.45 P.M. Diseases of Throat and Ear, Monday, 4 P.M. Vaccination, Thursday, 3 P.M. Special Surgical Cases, Wednesday, 4 P.M. Diseases of Eye, Thursday, 4 P.M.

EDINBURGH MEDICAL MISSIONARY SOCIETY MISSION DISPENSARY, 39 Cowgate. About 10,000 patients annually. Consulting Physician, Dr Byrom Bramwell. Consulting Physician (Accoucheur). Dr Underhill. Consulting Surgeon, Mr Cathcart. Medical Officers, Drs G. Keppie Paterson, Dawson Turner, J. M. Farquharson, E. F. Armour, and Thomas Lawson. Superintendent, Dr E. Sargood Fry. Resident, Dr T. W. Young. Dispenser, Mr A. K. Baxter. Vaccination, Dr Buist, Mondays, 3 P.M. Diseases of Women, Dr A. H. F. Barbour, Tuesdays and Thursdays, 4 P.M. Diseases of Children, Dr J. W. Ballantyne, Wednesdays, 3 P.M. Patients seen daily, 3 P.M. Surgical cases seen daily, 6 P.M. This Dispensary qualifies for the University and Extra-mural School in Dispensary Practice, Midwifery, and Practical Materia Medica.

Royal Asylum for the Insane. About 900 patients, over 370 of whom are private patients. Physician, Dr Clouston.

Eye, Ear, and Throat Infirmary, 6 Cambridge Street, Lothian Road, Edinburgh. Consulting Surgeon, Joseph Bell, F.R.C.S.E. Surgeons, J. J. Kirk Duncanson, M.D., F.R.C.P.E., G. Hunter Mackenzie, M.D., William George Sym, F.R.C.S.E., and Alexander Black, M.D.; Assistant Surgeon, Dr J. M. Farquharson. Eye Clinique daily at 1 P.M. Ear Clinique on Mondays, Thursdays, and Saturdays, at 12 noon. Throat Clinique on Tuesdays and Fridays at 4 P.M. Special Classes for Diseases of the Throat and Ophthalmoscopy. For particulars apply to Dr G. Hunter Mackenzie and Dr William George Sym respectively.

Incorporated Edinburgh Dental Hospital and School, 31 Chambers Street. *Consulting Medical Officers*—Alexander Peddie, M.D., F.R.C.P.E., Physician; Joseph Bell, F.R.C.S.E., Surgeon; John Smith, M.D., LL.D., F.R.C.S.E., Surgeon-Dentist. *Dean*, W. Bowman Macleod, L.D.S., 16 George Square. Dental Surgeons, J. G. Munro, G. W. Watson, J. S. Durward, J. S. Amoore, James Mackintosh, and David Monroe. *Assistant Dental Surgeons*, H. B. Ezard, R. N. Hannah, T. Gregory, Robert Lindsay, Fred. Page, Sewell Simmons, J. Alex. Young, Fred. J. Turnbull, L.R.C.P. & S., D. B. Wilson, Hume Purdie, J. Malcolm, and T. A. Mackintosh. *Chloroformists*, Drs R. J. Johnston, Thomas Proudfoot, Wm. Lundie, G. Matheson Cullen, and J. M. Farquharson. *Tutorial Dental Surgeon*, J. Morris Stewart, L.D.S.

Hospital Practice commences on 5th October. The hours during which the Hospital is open are from 9 to 11 A.M. No operation may be commenced after these hours, except by leave of the Tutorial Dental Surgeon. The Hospital Practice includes Extractions, Stoppings, Regulating Cases, etc., which will be undertaken by the Students, under the supervision of the Dental Surgeon in attendance. Students must provide their own stopping instruments. Burring Engines for the use of Senior Students have been added to the Hospital furnishings. Students are, however, expected to supply their own Burring Engines, as the Hospital Engines are not always available. The fee for the necessary attendance of two years is £15, 15s. The Directors offer two medals for excellence in Hospital Practice—I. For the best Senior Student. II. For the best Junior Student.

ARMY MEDICAL DEPARTMENT.

WAR OFFICE, LONDON.

SCHEDULE OF QUALIFICATIONS NECESSARY FOR CANDIDATES DESIROUS OF OBTAINING COMMISSIONS IN THE ARMY MEDICAL STAFF, WITH THE CONDITIONS OF SERVICE.

Qualifications.

1. A candidate for a commission in the Army Medical Staff must be 21 years and not over 28 years of age at the date of commencement of the competitive examination. He will be required to produce the following documents:—

(*a.*) An extract from the register of his birth; or, if this is not obtainable, a declaration, made before a magistrate by one of his parents or guardians, giving the date of his birth.

(*b.*) A recommendation from a person of standing in society (not a member of his own family) to the effect that he is of regular and steady habits, and likely in *every* respect to prove creditable to the Department if a commission be granted.

(*c.*) A certificate of moral character from the clergyman of the parish in which the candidate resides, if possible.

2. He must possess two diplomas or licences, recognised by the General Medical Council,—one to practise Medicine and the other Surgery, and must be registered under the Medical Act in force in the United Kingdom at the time of his appointment; but a candidate who holds a single diploma from the Society of Apothecaries, obtained under the conditions of the Medical Act of 1886, will be deemed to possess the double qualification required.

A candidate must also produce:—

(*a*.) A certificate of having discharged the duties of a medical clinical clerk during six months, and of a surgical dresser during another six months, of which, in each case, not less than three months must have been spent in the wards of a hospital.

(*b*.) A certificate of having attended a course of instruction during not less than three months at an ophthalmic hospital, or the ophthalmic department of a general hospital, which course shall include instruction in the errors of refraction.

3. The candidate must sign a declaration upon honour that he is of pure European descent, and that he labours under no mental or constitutional disease, or hereditary tendency thereto, nor any imperfection or disability that can interfere with the efficient discharge of the duties of a medical officer in any climate; also that he does not hold, and has never held, any commission or appointment in the public services.

4. His physical fitness will be determined by a Board of Medical Officers, who are required to certify that his vision is sufficiently good to enable him to pass the tests laid down by Regulations. The Board must also certify that he is free from organic or other disease, and from constitutional weakness, or other disability of any kind likely to unfit him for military service in any climate.

Certificates of age, registration of diplomas, etc., and of character, must accompany the declaration when signed and returned.

5. A public and open competition will be held twice in the year for the admission of qualified candidates as probationers. The number of appointments so competed for will be not less than half of the number of vacancies which shall have arisen in the last completed half-year ending on the 30th June or 31st December. It will be competent for the Secretary of State for War to fill up the remaining number from such qualified candidates as may be proposed by the governing bodies of Public Schools of Medicine in the United Kingdom or in the Colonies as he may think proper. Every candidate so proposed must be approved by the Director-General of the Army Medical Department, and be certified by the governing body proposing him to be duly qualified according to a standard laid down by the Secretary of State.

The Secretary of State reserves the right of rejecting any candidate who may show a deficiency in his general education, as evinced by bad spelling or composition.

An entrance fee of £1 is required from each candidate admitted to the competition, and is payable at the conclusion of his physical examination, if pronounced fit.

No candidate will be allowed to compete on more than two occasions.

6. The Secretary of State for War will from time to time fix the order of precedence and the proportion in which the several Schools of Medicine shall be offered the nomination of candidates.

7. A Surgeon on probation will be required to pass through such course at the Army Medical School as the Secretary of State shall decide, and after passing a qualifying examination in the military medical subjects taught there, and satisfying the Director-General that he possesses the necessary skill, knowledge, and character for permanent appointment to the Army Medical Staff, he will be commissioned as Surgeon-Lieutenant.

The Surgeons on probation who pass out of the Army Medical School at one qualifying examination will take precedence among each other as Surgeon-Lieutenants, as follows:—(*a*.) Those appointed on nomination according to their date of joining on probation. (*b.*) Those appointed by competition according to the last day of the competitive examination, and in order of merit, as determined by the combined results of the competitive and qualifying examinations, with priority over any joining under paragraph (*a*) on the last day of the competitive examination. Their commissions will bear the date of the day of their passing out of the Army Medical School,

EXAMINATIONS.

Compulsory Subjects for the Entrance Examination.

1. Candidates will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—*a.* Surgery, 1200; *b.* Medicine, including Therapeutics and Diseases of Women and Children, 1200; *c.* Anatomy and Physiology, 600; *d.* Chemistry and Pharmacy, and a practical knowledge of drugs, 600. [*N.B.*—The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of Medical and Surgical patients at the bedside. The examination in Chemistry will be limited to the elements of the science, and to its application to medicine, pharmacy, and practical hygiene.] No candidate shall be considered eligible for the Medical Staff who shall not have obtained at least *one-third* of the marks obtainable in each of the above *compulsory subjects*, and at least *one-half* of the aggregate of marks for all the compulsory subjects.

Voluntary Subjects for the Entrance Examination.

2. Candidates may be examined in the following voluntary subjects, for which the maximum number of marks obtainable will be:—Modern languages—French, 200; German, 200. Natural Sciences — A candidate may not present himself for examination in more than two of the following subjects:—*a.* Physics, 300; *b.* Zoology, 300; *c.* Geology and Physical Geography, 300; *d.* Botany, 300. A number less than one-third of the marks obtainable in each of these *voluntary subjects* will not be allowed to count in favour of the candidate who has qualified in the *compulsory subjects.* The knowledge of Modern Languages being considered of great importance, all intending competitors are urged to qualify in French and German.

The appointments announced for competition will be filled up from the list of qualified candidates arranged in the order of merit, as finally determined by the total number of marks each has obtained in both the compulsory and voluntary subjects.

After passing this examination, every successful candidate will be required to attend one course of practical instruction at the Army Medical School as a Surgeon on probation in—(1) Hygiene; (2) Clinical and Military Medicine; (3) Clinical and Military Surgery; (4) Pathology of Diseases and Injuries incident to Military Service.

All Surgeons on probation will be required to conform to such rules of discipline as the Senate may from time to time enact, and provide themselves with uniform, viz., the regulation undress and mess uniform of a surgeon-lieutenant, including the serge jacket, but without the sword, sword-belt, dress trousers, and badge of rank.

They will be required to attend the Army Medical Staff Mess at Netley, and to conform to the Rules and Regulations thereof.

RANK AND PAY.

The ranks and daily rates of pay (exclusive of allowances) of the officers of the Army Medical Staff are as follows: — Surgeon-Major-General, £2, 15s. Surgeon-Colonel, £2. Brigade-Surgeon Lieutenant-Colonel, £1, 10s.; after

five years in the rank, £1, 13s. Surgeon-Lieutenant-Colonel, after twenty years' service, £1, 5s.; after twenty-five years' service, £1, 7s. 6d. Surgeon-Major or Surgeon-Lieutenant-Colonel, £1; after fifteen years' service, £1, 2s. 6d. Surgeon-Captain or Surgeon-Lieutenant, £200 a year; after five years' service, £250; after ten years' service, 15s. daily. Surgeon on probation, 8s.

INDIAN MEDICAL SERVICE.

REGULATIONS FOR THE EXAMINATION OF CANDIDATES FOR ADMISSION TO HER MAJESTY'S INDIAN MEDICAL SERVICE.

(*Subject to any alterations that may be determined on.*)

1. *Limits of Age.*—Candidates must be natural-born subjects of Her Majesty, between 21 and 28 years of age at the date of the examination, of sound bodily health, and in the opinion of the Secretary of State for India in Council in all respects suitable to hold commissions in the Indian Medical Service. They may be married or unmarried. They must possess a Diploma or Diplomas entitling them under the Medical Acts to practise both Medicine and Surgery in Great Britain and Ireland.

2. *Declaration to be submitted.*—They must subscribe and send in to the Military Secretary, India Office, Westminster, *so as to reach that address at least a fortnight before the date fixed for the Examination*, a declaration according to a prescribed form.

3. This declaration must be accompanied by the following documents :—

a. Proof of age, either by Registrar-General's certificate, or, where such certificate is unattainable, by the candidate's own statutory declaration, form of which can be obtained at the India Office, supported, if required by the Secretary of State, by such evidence as he may consider satisfactory. A certificate of baptism which does not afford proof of age will be useless.

b. A recommendation from some person of standing in society—not a member of his own family—to the effect that he is of regular and steady habits, and likely in every respect to prove creditable to the service if admitted; and a certificate of moral character from a magistrate, or a minister of the religious denomination to which the candidate belongs.

c. A certificate of registration, under the Medical Acts, of the degrees, diplomas, and licences possessed by the candidate.

d. A certificate of having attended a course of instruction for not less than three months at an ophthalmic hospital, or the ophthalmic department of a general hospital, which course shall include instruction in the errors of refraction.

4. *Physical Examination.*—The physical fitness of each candidate will be determined previous to examination by a Board of Medical Officers, who are required to certify that his vision is sufficiently good to enable him to perform any surgical operation without the aid of glasses. A moderate degree of myopia[1] will not be considered a disqualification, provided it does not necessitate the use of glasses during the performance of operations, and that no organic disease of the eyes exists.

Every candidate must also be free from all other organic disease and from constitutional weakness, or other disability likely to unfit him for military service in India.

5. *Subjects for Examination.*—On producing the foregoing qualifications,[2]

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[1] Further particulars as to the standard of eyesight will be found in the pamphlet by Sir J. Fayrer, M.D., K.C.S.I., etc., entitled *Regulations as to Defects of Vision, etc.*, published by Messrs J. & A. Churchill, 7 Great Marlborough Street, London, W.

[2] Candidates who pass the Physical Examination will be required to pay a fee of £1 before being permitted to compete.

the candidate will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—

	Marks.
a. Surgery, ...	1200
b. Medicine, including Therapeutics, the Diseases of Women and Children, ...	1200
c. Anatomy and Physiology, ...	600
d. Chemistry and Pharmacy, and a practical knowledge of Drugs,	600

(The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of medical and surgical patients at the bedside.)

The examination in Chemistry will be limited to the elements of the science, and to its application to medicine, pharmacy, and practical hygiene.

No candidate shall be considered eligible who shall not have obtained at least *one-third* of the marks obtainable in each of the above *compulsory subjects*, and *one-half* of the aggregate marks for all the *compulsory subjects.*

6. *Voluntary Subjects.*—Candidates may be examined in the following voluntary subjects, for which the maximum number of marks obtainable will be :—

	Marks.
French, German, and Hindustani (200 each), . . .	600
Natural Sciences—(1) Physics, (2) Zoology, (3) Geological and Physical Geography, (4) Botany, 300 each; but a candidate may not take up more than two of these, . .	600

A number less than one-third of the marks obtainable in any of these *voluntary subjects* will not be allowed to count in favour of a candidate who has qualified in the *compulsory subjects.*

The knowledge of modern languages being considered of great importance, all intending competitors are urged to qualify in French and German.

Candidates presenting themselves for examination in Hindustani are recommended to study some recognised text-book, such as the annotated edition of the "Taubat-un-Nasuk," which is the text used by candidates for the Indian Civil Service.

7. The appointments announced for competition will be filled up from the list of qualified candidates arranged in order of merit, as finally determined by the total number of marks each has obtained in both the compulsory and voluntary subjects.

The Examiners in London will prepare a list in order of merit, with the marks affixed in the different subjects, to be transmitted to the Director-General and communicated to the Professors of the Army Medical School. If any candidate is found to be deficient in any particular subject, this shall be stated, in order that he may receive special instruction on the point at Netley.

8. *Course at Netley.*—After passing this examination the successful candidates will be required to attend one entire course of practical instruction at the Army Medical School in—(1.) Hygiene. (2.) Clinical and Military Medicine. (3.) Clinical and Military Surgery. (4.) Pathology of Diseases and Injuries incidental to Military Service.

These courses will be of not less than four months' duration; but candidates who have already gone through a course at Netley as candidates for the Army Medical Service may, if thought desirable, be exempted from attending the School a second time.

9. *Pay and Uniform while at Netley.*—During the period of residence at the Army Medical School, each candidate will receive an allowance of 8s. per diem with quarters, or, when quarters are not provided, with the usual fuel and light allowances of a subaltern, to cover all costs of maintenance; and

he will be required to provide himself with uniform (viz., the regulation undress uniform of a Surgeon-Lieutenant of the British Service, but without the sword).

10. Candidates will be required to conform to such rules of discipline as the Senate may from time to time enact.

11. *Examination at Netley.*—At the conclusion of the course, candidates will be required to pass an examination on the subjects taught in the School. The examination will be conducted by the Professors of the School.

The Director-General, or any Medical Officer deputed by him, may be present and take part in the examination. If the candidate give satisfactory evidence of being qualified for the practical duties of an Army Medical Officer, he will be eligible for a Commission as Surgeon-Lieutenant.

12. *Position on List, how determined.*—The position of the candidates on the list of Surgeon-Lieutenants will be determined by the combined results of the preliminary and final examinations, and, so far as the requirements of the service will permit, they will have the choice of Commands in India (*i.e.*, Bengal, Punjab, Madras, or Bombay) according to their position in that list.

Officers appointed to the Indian Medical Service will be placed on one list. Though ordinarily employed within the limits of the Command to which they may have been posted, they will be liable to employment in any part of India according to the exigencies of the Service.

13. No candidate will be permitted to compete more than twice.

Examinations for admission to the Service usually take place twice in the year,—*i.e.*, in February and August.

MEMORANDUM REGARDING THE POSITION OF OFFICERS TO BE APPOINTED TO HER MAJESTY'S INDIAN MEDICAL SERVICE.

(*Subject to any alteration that may be determined on.*)

Passage to India.—Officers on appointment will, if possible, be provided with passage to India by troop-ship; but when troop-ship accommodation is not available, passage at the public expense will be provided by steamer, or a passage allowance will be granted, if preferred. A charge for messing during the voyage will be made at the rate of 2s. a day. This payment will not include the cost of liquors, which will be charged for as extras.

All Officers who shall neglect or refuse to proceed to India under the orders of the Secretary of State for India within two months from the date of leaving Netley, will be considered as having forfeited their appointments, unless special circumstances shall justify a departure from this regulation.

Pay previous to Arrival in India.—The rate of pay drawn by Surgeon-Lieutenants from the date of passing the final examination at the Army Medical School until arrival in India will be 10s. a day.

Pay at the above rate will be issued in this country up to the date of embarkation, and an advance of two months' pay at the same rate will also be made prior to embarkation.

Grades and Precedence.—The grades of Officers in the Indian Medical Service are seven in number, viz.:—1. Surgeon-Major-General. 2. Surgeon-Colonel. 3. Brigade-Surgeon-Lieutenant-Colonel. 4. Surgeon-Lieutenant-Colonel. 5. Surgeon-Major. 6. Surgeon-Captain. 7. Surgeon-Lieutenant. These ranks carry precedence and generally other advantages attaching to the rank indicated by the military portion of the title.

Pay and Allowances when in India.—Officers appointed to the Indian Medical Service will receive pay in India according to the following scale when not holding an appointment carrying higher pay:—

Rank.	Years' Service.	Pay and Allowances per Mensem.		
		R.	A.	P.
Brigade-Surgeon-Lieut.-Colonel and Surg.-Lieutenant-Colonel	25 and over	888	12	0
Surgeon-Lieut.-Colonel	20 "	852	3	7
Surgeon-Major . .	15 "	677	6	11
" . .	12 "	640	14	6
Surgeon-Captain . .	10 "	451	14	5*
" . .	6 "	433	10	2*
" . .	5 "	335	12	2*
Surgeon-Captain and Surg.-Lieutenant	under 5	317	8	0*

* When not receiving any staff allowance.

On first appointment they will only come into receipt of Indian pay and allowances from the date of their arrival in India.

The monthly salaries of officers holding the principal administrative appointments and substantive military charges of the Indian Medical Service receive, at present, the following consolidated salaries:—Surgeon-Major-General, one at Rs. 2700; two at Rs. 2500; and two at Rs. 2200. Surgeon-Colonel, from Rs. 1800 to Rs. 2250; Brigade-Surgeon-Lieutenant-Colonel or Surgeon-Lieutenant-Colonel, of twenty years' service and upwards, in substantive charge of a Native regiment, Rs. 1000, with Rs. 90 horse allowance in Cavalry regiments; Surgeon-Major, under twenty years' service, in substantive charge of a Native regiment, Rs. 800, with Rs. 90 horse allowance in Cavalry regiments; Surgeon-Captain, above five years' full-pay service, in substantive charge of a Native regiment, Rs. 600, with Rs. 60 horse allowance in Cavalry regiments; Surgeon-Captain or Surgeon-Lieutenant, under five years' full-pay service, in substantive charge of a Native regiment, Rs. 450, with Rs. 60 horse allowance in Cavalry regiments. The salaries of other substantive medical appointments in the Civil and Military Departments are consolidated, and vary from Rs. 1800 to Rs. 400 per mensem. Qualified officers of the Medical Service are also eligible for appointments in the Assay Department. The salaries of these appointments are from Rs. 600 to Rs. 2250 per mensem. Officers are required to perform two years' regimental duty in India before they can be considered eligible for civil employment.

Retiring Pensions and Half-Pay.—Officers of the Indian Medical Service will be allowed to retire on the following scale of pension, on completion of the required periods of service:—After thirty years' service for pension, £700; after twenty-five years' service for pension, £500; after twenty years' service for pension, £365; after seventeen years' service for pension, £292. Time of service for pension will reckon from date of first commission. A Surgeon-Major-General, after five years' active employment in India in that appointment, will be entitled to retire upon a pension of £350 per annum, in addition to that to which he may be entitled under the above scale. A Surgeon-Colonel will, after five years' active employment in India in that appointment, be entitled to retire upon a pension of £250 per annum, in addition to the pension to which he may be entitled under the above scale.

A Surgeon-Major-General or Surgeon-Colonel who has completed his term of service and has reverted to British pay, may reside in Europe, at the same time qualifying for higher pension.

With a view to maintain the efficiency of the service, all Officers of the rank of Brigade-Surgeon-Lieutenant-Colonel, Surgeon-Lieutenant-Colonel, and Surgeon-Major, shall be placed on the Retired List when they shall have attained the age of fifty-five years, and all Surgeon-Major-Generals and Surgeon-Colonels when they shall have attained the age of sixty years. In any special case, where it would appear to be for the good of the service that the Officer should continue in employment, he may be so continued, subject in each case to the sanction of the Secretary of State for India in Council.

Officers hereafter admitted to the Indian Medical Service will, after retirement on pension before completing thirty years' service, be liable to recall to military duty, in case of any great emergency arising, up to 55 years of age.

Wound Pensions.—Officers will be entitled to the same allowances on account of wounds and injuries received in action as are granted to combatant Officers of Her Majesty's Indian Military Forces holding the corresponding military rank.

Family Pensions.—The widows and families of Officers will also be entitled to pensions under the Indian Service Family Pension Regulations, for the benefits of which all Officers must, as a condition of their appointment, subscribe from the date of their arrival in India.

NAVY MEDICAL DEPARTMENT.

Admiralty, Northumberland Avenue, London, W.C.

REGULATIONS FOR ENTRY OF CANDIDATES FOR COMMISSIONS IN THE MEDICAL DEPARTMENT OF THE ROYAL NAVY.

1. Every candidate for admission into the Medical Department of the Royal Navy must be not under 21 nor over 28 years of age on the day of the commencement of the competitive examination. He must produce an extract from the register of the date of his birth; or, in default, a declaration made before a magistrate, from one of his parents or other near relative, stating the date of birth. He must also produce a certificate of moral character up to date, and a recommendation signed by a clergyman or magistrate to whom he has been for some years personally known, or by the president or senior professor of the college at which he was educated.

2. He must be registered, under the Medical Act in force, as qualified to practise Medicine and Surgery in Great Britain and Ireland.

3. He must declare that he is a British subject, the son of parents of unmixed European blood; that he labours under no mental or constitutional disease or weakness, or any other imperfection or disability which may interfere with the most efficient discharge of the duties of a medical officer in any climate; and whether he holds or has held any commission or appointment in the public services.

He must also declare his readiness to engage for general service at home or abroad as required.

He must be free from organic or other disease, and his physical fitness will be determined by a Board of Medical Officers, who are to certify that his vision comes up to the required standard, which will be ascertained by the use of Snellen's test types.

The certificates of registration, character, and birth must accompany the declaration, which is to be filled up and returned as soon as possible, addressed as above.

4. Candidates will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—(*a*) Medicine, including Diseases of Women and Children (1000 marks); (*b*) Surgery (1000 marks); (*c*) Anatomy and Physiology (1000 marks); and (*d*) Chemistry and Materia Medica, and a practical knowledge of Drugs (1000 marks). (The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of Surgical Apparatus, and the examination of Medical and Surgical

patients at the bedside. The examination in Chemistry will be limited to the elements of the Science, and to its application to Medicine, Pharmacy, and Practical Hygiene; and the examination in Materia Medica will include a knowledge of the physiological actions and therapeutical uses of Drugs.)

No candidate shall be considered eligible who shall not have obtained at least *one-third* of the maximum marks in each of the above *compulsory subjects.*

5. Candidates may be examined in the following voluntary subjects, for which the maximum number of marks obtainable will be:—French and German (150 each), 300 marks; Biology, Physics, and Physical Geography (100 each), 300 marks. A number less than one-third of the marks obtainable in each of these *voluntary subjects* will not be allowed to count in favour of the candidate who has qualified in the *compulsory subjects.*

The knowledge of modern languages being considered of great importance, all intending competitors are urged to qualify in French and German.

The Natural Sciences will include Biology, Physics, and Physical Geography.

6. The appointments announced for competition will be filled up from the list of qualified candidates arranged in the order of merit as finally determined by the total number of marks each has obtained in both the compulsory and voluntary subjects.

7. Successful candidates, immediately after passing the examination, will receive Commissions as Surgeons in the Royal Navy, and will undergo a course of practical instruction in Naval Hygiene, etc., at Haslar Hospital.

8. A fee of £1 will have to be paid by each candidate to entitle him to take part in the competition.

The full and half-pay per day of Naval Medical Officers is in accordance with the following scale:—FULL-PAY: Surgeon—On entry, 11s. 6d.; after 4 years' full-pay service in rank, 13s. 6d.; after 8 ditto, 15s. 6d. Staff-Surgeon—On promotion, £1, 1s.; after 4 years' full-pay service in rank, £1, 4s. Fleet-Surgeon—On promotion, £1, 7s.; after 4 years' full-pay service in rank, £1, 10s.; after 8 ditto, £1, 13s. Deputy Inspector-General, £2, 2s. Inspector-General, £2, 15s. On first appointment to the service, medical officers will receive full pay from date of appointment, but subject to the provisions of Art. 1342, clause 2, of the Queen's Regulations, 1893. HALF-PAY: Surgeon—Under 2 years' full-pay service, 6s.; after 2 years' full-pay service, 7s.; after 4 ditto, 8s.; after 6 ditto, 9s.; after 8 ditto, 10s.; after 10 ditto, 11s. Staff-Surgeon—On promotion, 12s.; after two years' full-pay service in rank, 13s.; after 4 ditto, 14s.; after 6 ditto, 15s. Fleet-Surgeon—On promotion, 17s.; after two years' full-pay service in rank, 18s.; after 4 ditto, 19s.; after 6 ditto, £1. Deputy Inspector-General—On promotion, £1, 5s.; after 2 years' full-pay service in rank, £1, 7s.; after 4 ditto, £1, 9s. Inspector-General, £1, 18s.

Part Fourth.

PERISCOPE.

SURGICAL PERISCOPE.

By KENNETH M. DOUGLAS, M.D., F.R.C.S. Edin.

ÆTIOLOGY OF TUBERCULAR CERVICAL GLANDS, ESPECIALLY WITH REFERENCE TO ADENOIDS AND ENLARGEMENT OF THE TONSILS.—Mr Nicoll finds that cases of bilateral tubercular glands constitute over 70 per cent. of the cases he has observed, and with the addition of some cases of unilateral disease, in over 80 per cent.

he found the exciting cause of the enlargement in the naso-pharynx. There seems, he thinks, ground for the belief that of naso-pharyngeal catarrhs a number are in their nature tubercular. The work of Dr Dmochowski is referred to (*Ziegler's Beiträge*, 1891, vol. x.), in which is established the presence of active tubercle bacilli in the tonsils and the follicular glands of the tongue; and likewise Prof. Dieulefoy's paper (*Bulletin de l'Acad. de Méd.*, April 30, 1895), which describes the detection of the organisms in enlarged tonsils and adenoids in persons *not suffering from phthisis.* Whether the pathological changes are due to these or to other organisms is not clear, the tubercle bacilli being found in considerable numbers in the mouth and pharynx of healthy subjects. There is difficulty in determining whether these organisms are merely *en route* for the glands or the cause of the changes in the pharyngeal lymphoid tissues. It is, however, certainly essential to thoroughly treat the pharyngeal condition; and one desideratum is to find a means of effectually applying iodoform after removal of unhealthy tissue.—*Glasgow Medical Journal*, January 1896.

GASTROPAXY.—M. Duret having found certain dyspeptic symptoms associated with prolapse or downward displacement of the stomach, proposed fixation of the organ, and has in one case carried this idea into practice, apparently with good effect. A median abdominal incision was made, the peritoneum in the upper part of the wound not being divided; the stomach was exposed, the edge of the liver being raised if need be, and was fixed by silk suture to the parietal peritoneum at the upper end of the incision. The suture applied was continuous, linear, and horizontal, near the pylorus, parallel to the lesser curvature, and did not implicate the mucous membrane.—*Rev. de Chirurgie*, June 1896.

CARCINOMA OF THE STOMACH: OPERATIVE TREATMENT.—Prof. Krönlein (Zurich) makes observations based on consideration of 67 cases—40 men and 27 women. Five patients were less than 30 years of age. Of the 67 cases, 26 were not operated upon, 22 were subjected to exploratory operation, 4 to gastro-enterostomy, 15 to pylorectomy. It is interesting to note the duration of life in the cases not operated upon. Of the 7 cases that appeared operable, but which declined operation, one lived 652 days, another 215 days; one died in 27 days, and another in 87 days. Of 19 cases that appeared inoperable, and hence were not subjected to operation, none lived more than nine months; only 5 more than five months. Six lived but one month. Of the 22 cases in which exploratory laparotomy was performed, 2 lived upwards of one year; 10 lived less than three months. The longest period was 308 days. Of the 15 cases in which pylorectomy was performed, 4 died and 11 recovered,—a mortality of 26·6 per cent. This is a very low mortality compared with that of other surgeons; Billroth's, up to 1890, was 55·1 per cent. in 29 cases; Czerny's, up to 1895, was

43·7 per cent. in 16 cases; Mikulicz's, up to 1895, was 27·7 per cent. in 18 cases. The final results in Krönlein's cases were as follows:—One case lived 794 days; a second, 488 days; a third, 509 days; a fourth, 596 days; a fifth, 128 days; a sixth, 14 days. The remaining five cases were still living at the time the report was published.—*Beiträge z. Clin. Chirurgie*, xv. 2.

Castration for Enlarged Prostate.—Dr A. Pégurier contributes a suggestive paper on this subject. He discusses the anatomical and physiological relationship of the prostate to the testes, and the teratological, experimental, and clinical facts which have been lately adduced in connexion with this relationship. Dr Pégurier regards the changes in the enlarged prostate as pathological, finding difficulty in accepting Launois' theory maintaining the physiological nature of the process, from the fact that while according to this view senile atrophy of the testes induces prostatic hypertrophy, yet the atrophy following orchitis, a process essentially the same, induces atrophy of the prostate. The statements of Kirby and White as to the difference of the prostate in the bull and the ox, and in the ram and the sheep, are controverted, Dr Pégurier having investigated the case and found the gland equally developed in both animals; further, inasmuch as there is no fixed ratio between the weight of an animal (such as the dog) and the size of the prostate, White's deductions from this basis are looked upon as fallacious. The action of the operation is an "anti-congestive" action, as already stated by Guyon, but there is further admittedly a true atrophy; the mechanism producing this is obscure. The operation is indicated in the stage of retention, not in early cases, and especially not in late cases with bladder atony and incontinence; on this point M. Albarran's recorded views are corroborated and sustained.—*Annales des Maladies des Organes Génito-Urinaires*, April 1896 (from *Nouveau Montpelier Médical*, 28th Dec. and 11th Jan.).

Coxa Vara.—Professor Ogston gives his experience of this disease, first described by Ernst Müller in 1889, the name being suggested in 1894 by Hofmeister (Tubingen). The main interest of the condition lies in its differential diagnosis from tubercular disease of the hip joint, a diagnosis of much importance. Ogston had been for some years collecting notes of cases when Hofmeister's paper appeared, and the present article corroborates Hofmeister's views, and notices some characteristics and modes of measurement not previously recorded. A case of coxa vara presents no wasting, no flattening of the gluteal fold, and in some cases the eversion and outward displacement noted by Hofmeister are absent. Ogston's measurements are based on those of Nelaton, and the form of the triangle (Bryant's) shows shortening of the cervix femoris and rotation of the femur; the triangle normally being isosceles, in this disease it is scalene. If Thomas' test be applied, it is noted that the sound limb being fully flexed on the abdomen, the knee on the affected side can be pressed down to the bed,—the reverse of what obtains in hip disease. Notes of three cases are embodied in the paper.—*Practitioner*, April 1896.

BILOCULAR INTRA-PELVIC AND SCROTAL HYDROCELE.—Professor M'Ewen records two cases, and discusses the pathology of the condition. The funiculo-vaginal portion of the peritoneum is carried as a sheath along the anterior aspect of the pelvic portion of the cord, the connexion with the peritoneum becomes obliterated, so that it becomes continuous and patent from the testicular covering to the deepest part of the pelvic portion of the cord. If this elongated sac gets distended with fluid a bilocular hydrocele forms, with a constriction at the external ring. By adhesions at this point an intra-pelvic cyst would be formed.—*Ibid.*, Aug. 1896.

RARE VARIETY OF CYST OF THE URINARY BLADDER—PROBABLY ARISING FROM URACHUS—CURED BY OPERATION.—Dr Newman records this case, that of a male, aged 39, who complained of pain in the hypogastrium during four days and retention of urine, with vomiting and diarrhœa. With the catheter urine mixed with blood was drawn off. There was abdominal swelling, with a dull percussion note from umbilicus to pubes, which persisted after the bladder was emptied. For a week after admission to hospital the patient's condition steadily improved, and he was then able to pass urine without difficulty. "Physical examination of the abdomen still showed considerable swelling in the hypogastric region, resembling in appearance a greatly distended bladder. Over the area of the swelling there was considerable tenderness on pressure, and on palpation fluctuation could be made out. The patient was placed under chloroform, and a free incision was made in the middle line in front, midway between the pubes and the umbilicus. On penetrating the tranversalis fascia, a large quantity of gelatinous fluid escaped, which had a strongly ammoniacal odour. The cyst wall was thin and smooth, and its anterior wall was not covered by peritoneum. The cyst extended from the apex of the bladder to the umbilicus. After clearing out the contents the cyst was washed with carbolic solution, and a drainage-tube inserted. In the evening the dressing was found to be soiled with urine, which had a strong ammoniacal odour." Eight days later the greater quantity of urine passed through the wound in the parietes, so that a gum-elastic catheter was tied in the urethra for drainage; but notwithstanding, urine continually escaped through the wound, and it was not until four weeks after the operation that the cyst became completely obliterated, and the wound in the parietes closed.—*Glasgow Medical Journal*, July 1896.

SPLENECTOMY.—Dr Richard Douglas (Nashville, U.S.A.) traces the history and lays before us the statistics of this operation. He has collected from the records 187 cases, 46 operations being for injury and 143 for disease—31 in men, 112 in women. He classifies the cases as follows:—(1.) Cases of leukæmia, 36, with 5 recoveries; 16 deaths from secondary hæmorrhage and 9 from shock. (2.) Malarial cases, 40, with 24 recoveries (his own case among them). (3.) Cases of "simple hypertrophy," 59, with 34 recoveries; 9 deaths from hæmorrhage. (4.) Cases of neoplasm, 5 (sarcomata), with 2 recoveries; other cases were 8, with 5 recoveries, 6 being cases of cyst. In cases where analysis of the blood was made before and after operation, in two increase of red cells was found, and in two diminution. The writer's own case was that of a woman, aged 33, who recovered after removal of a large malarial spleen (weight not stated), and seven months after was said to be quite well. The operation was followed by pain, oliguria, diarrhœa, and drowsiness, and on the fourteenth and eighteenth days large bloody stools were passed, after which marked improvement set in.—*Journal of American Medical Association*, April 25, 1896.

PERISCOPE OF SYPHILIS AND GENITO-URINARY DISEASES.

By Francis Cadell, F.R.C.S. Ed.

Contrexéville.—These waters contain sulphates of lime and magnesia, together with their bicarbonates, and also those of iron and lithium, with traces of fluoride and of arsenic. They are best taken fasting or between meals, and should be drunk fresh. Physiologically, they act by stimulating the secretions, especially of the urine. This is seen more especially in the dyspeptic ailments preceding the uric acid diathesis. Here they act by producing copious diuresis, as well as directly upon the mucous membrane of the urinary tract. In males the waters stimulate the genital organs, and in women correct uterine irregularities associated with gout and gravel. The chief diseases treated at Contrexéville are gravel, gout diseases of the bladder and prostate, diabetes, and hepatic colic. The results in gravel are too well known to need special mention, but sufficient care in diet after a cure is not always taken to prevent a relapse. In renal pain or turbid urine, associated, perhaps, with catarrh of the urinary tract, they are very valuable. Strong mineral and bicarbonated waters, especially Vichy, in these cases are injurious. In phosphatic gravel the urine speedily becomes acid and the catarrh disappears. In gout, alone or with gravel, the attacks quickly disappear, eventually to reappear only after excesses in eating. In the vesical catarrh of old men, with or without enlarged prostate, the symptoms are at once alleviated, and are usually cured after a season or two. Civiale draws attention to the increased power of the bladder to expel its contents after a course of these waters. In debilitated cases with hepatic colic the same good results are obtained; here the laxative effects are useful when there is any tendency to constipation. In gouty diabetes the sugar, whether large in amount or not, either diminishes or entirely disappears. Where it has been found in successive years, it is always in much smaller quantities. Other diseases benefited are dyspepsia, diseases of the prostate, chronic urethritis, spermatorrhœa, and uterine catarrh.—Debout D'Estrées, M.D., *New York Medical Record*, March 9, 1895.

Castration for Enlarged Prostate.—It is a remarkable fact that man is the only animal who is punished with enlarged prostate; not that other animals have no prostate gland, but that in them the urethra only gutters the gland, while man's urethra tunnels it. Prostatic hypertrophy, if it exist in veterinary surgery, would therefore be a trifling affection as compared with the disease of the same name in man. But there are other than anatomical reasons for man's torment in this particular, and the chief one is the great age he attains, and consequently the great length of the procreative period in man as compared with that of other animals. This constant use of the organs of generation for many years, with the vascular congestions, muscular high tensions, and nerve over-taxations which it involves whenever venery is excessive, makes it not remarkable that the prostate should become inconveniently large at 50 and upward, but marvellous that the hypertrophy does not occur at a much earlier period in life. Enlarged prostate would seem to be, then, Nature's embargo upon the further exercise of a function which, in the case of most men, has been too liberally indulged over a period far longer than physiology can allow without pathological protest. And so "the old man's bladder" is an opprobrium which surgery has been trying to lift, but, alas! vainly, ever since the anatomy of the urethra has come to be understood. We are well aware that the above theory of the etiology of prostatic hypertrophy is not the one put forward by the surgical authorities of the day; but if the bold operation (namely, castration) recently suggested and now practised for its relief be well founded, as all operations should be, in anatomy and physiology, long-continued indulgence in venery must be accepted as the cause. Indeed, analogical reasoning, *e.g.*, ovarian congestion in pelvic neuralgias and other pelvic derangements, and prolonged abuse, with chronic derangement of the digestive organs in relation to Bright's disease, etc., suggests its fitness. Be the theory of cause what it may, the new operation is brilliant of results, and promises to add many years of comfort to a most dignified and respectable, but grievously tormented, class of invalids. Urethras impervious to urine or instruments before the operation have admitted a soft catheter in a few hours, and have permitted of voluntary micturition in a week's time, while coincidental rectal hæmorrhoids have, after a few months, entirely disappeared. Such results are indeed brilliant, and the operation, notwithstanding its great physiological expense, will doubtless be hailed with joy and submitted to with gladness by a multitude of senile sufferers.—*The American Practitioner and News*, March 21, 1896.

Seborrhœic Vaginitis.—Under the name of vaginal seborrhœa Strassmann describes (*Practitioner*) a peculiar form of vaginal catarrh which is frequently met with in stout women, old maids, and during pregnancy. This may be considered as simply due to exaggeration of the normal secretion of the vagina, and is characterised by slight discharge consisting mainly of whitish, fatty clots, in which are found agglomerations of pavement epithelium. Relief is rapidly obtained by means of injections of warm water to which a little sodium bicarbonate has been added.—*Medical Standard.*

PUBLICATIONS RECEIVED.

Edward Mansfield Brockbank, M.D. Vict., M.R.C.P. Lond.,—On Gall-Stones or Cholelithiasis. J. & A. Churchill, London, 1896.

Bernard E. Brodhurst, F.R.C.S.,—Observations on Congenital Dislocation of the Hip. Third Edition. J. & A. Churchill, London, 1896.

Sir William B. Dalby, F.R.C.S., M.B. (Cantab.),—Short Contributions to Aural Surgery. Third Edition. J. & A. Churchill, London, 1896.

Fortieth detailed Annual Report of the Registrar-General of Births, Deaths, and Marriages in Scotland (Abstract of 1894).

Arthur Foxwell, M.A., M.D., etc.,—The Enlarged Cirrhotic Liver. Cornish Brothers, Birmingham.

Alexander James, M.D., F.R.C.P.E.,—Royal Infirmary Cliniques. Oliver & Boyd, Edin., 1896.

Pictorial Atlas of Skin Diseases and Syphilitic Affections, etc. Edited and Annotated by J. J. Pringle, M.B., F.R.C.P. Part 4. The Rebman Publishing Co., London. 1896.

Reports on the Royal Lunatic Asylum of Montrose for 1896. Montrose, 1896.

George M. Sternberg, M.D., LL.D.,—A Text-Book on Bacteriology. J. & A. Churchill, London, 1896.

The Prescribers' Pharmacopœia. Third Edition. Kemp & Co., Limited, Bombay.

Prof. W. D. Halliburton, M.D., F.R.S.,—Kirkes' Handbook of Physiology. Fourteenth Edition. John Murray, London, 1896.

Thirty-eighth Annual Report of the General Board of Commissioners in Lunacy for Scotland.

Transactions of the Dermatological Society of Great Britain and Ireland, 1895–96. Edited by James H. Stowers, M.D., and Leonard A. Bidwell, F.R.C.S. H. K. Lewis, London, 1896.

Transactions of the Obstetrical Society of London. Vol. 38, part 2. Edited by Drs W. R. Dakin and Percy Boulton.

PERIODICALS RECEIVED.

Albany Medical Annals,—Jan.-Aug.

Alienist and Neurologist,—Jan.-July.

American Gynæcological and Obstetrical Journal,—Jan.-Aug.

American Journal of Obstetrics,—Jan.-Sept.

American Journal of the Medical Sciences,—Jan.-Sept.

American Medico-Surgical Bulletin.—Jan. 4-Sept. 12.

American Practitioner and News,—Jan. 4-Aug. 22.

Annales de Dermatologie, etc.,—Jan.-July.

Annales des Maladies des Organes Génito-urinaires,—Jan.-Sept.

Annales des Maladies de l'Oreille, etc.,—Jan.-Sept.

Annales de la Policlinique de Bordeaux,—Jan.-July.

Annales et Bulletin de la Société de Médecine d'Anvers,—Jan.-Aug.

Annali di Ostetricia e Ginecologia,—Jan.-Aug.

Archives de Gynécologie et de Tocologie,—Jan.-Aug.

Archives Générales de Médecine,—Jan.-Sept.

Archives of Pediatrics,—Jan.-Sept.

Archivos de Ginecopatia, Obstetricia, y Pediatria,—Jan.-May 25.

Australasian Medical Gazette.—Jan-July.

Berliner Klin. Wochenschrift,—Jan. 6-Sept. 21.

Birmingham Medical Review,—Jan.-Sept.

Births, Deaths, and Marriages, Monthly Returns of,—Jan.-Aug.

Do., Quarterly Returns of,—Jan.-June.

Do., Weekly Returns of,—Jan. 4-Sept. 12.

Blätter für Klinische Hydrotherapie,—Jan.-Aug.
Boletim da Sociedade de Medicina e Cirurgia de Sao Paulo.—April-June.
Boston Medical and Surgical Journal,—Jan. 2-Sept. 3.
Bristol Medico-Chirurgical Journal,—June.
British Gynæcological Journal,—Jan.-Aug.
British Journal of Dermatology,—Jan.-Sept.
British Medical Journal,—Jan. 4.-Sept. 19.
Brooklyn Medical Journal,—Jan.-Sept.
Bulletin of the Johns Hopkins Hospital,—Jan.-Aug.
Canada Medical Record,—Dec.
Centralblatt für Bacteriologie und Parasitenkunde,—Band xix., Nos. 1-26; Band xx.. Nos. 1-9.
Centralblatt für Chirurgie,—Jan. 4-Sept. 19.
Centralblatt für Gynäkologie,—Jan. 4-Sept. 19.
Centralblatt für Innere Medicin,—Jan. 4-Sept. 19.
Centralblatt für Nervenheilkunde und Psychiatrie,—Jan.-Sept.
Charlotte Medical Journal,—Jan.-Aug.
Chemist and Druggist.—Jan. 4-Sept. 19.
Chikitsaka-o-Samalochaka,—April, June.
Clinical Sketches illustrative of Practical Medicine and Surgery. Vol. III., Nos. 8-15.
Dietskaya Medycina (Medicine of Children),—Jan.
Dominion Medical Monthly and Ontario Medical Journal.—Jan.-Aug.
Dublin Journal of Medical Science,—Jan.-Sept.
Ephemeris of Materia Medica, Pharmacy, Therapeutics, etc.,—Jan.
Gaceta Médica de Costa Rica,—May-Aug.
Gazette Médicale de Paris,—Jan 4-Sept. 19.
Gazzetta Medica di Torino,—Jan 2-July 23.
Glasgow Medical Journal,—Jan.-Sept.
Hermes Medical Supplement,—Jan. 2.-May 28.
Illinois Medical Journal.—Feb.
Il Policlinico,—Jan 1-Sept. 1.
Indian Medical Gazette,—Jan.-Aug.
Indian Medical Record.—Jan. 1-Sept. 1.
Intercolonial Medical Journal of Australasia—Jan.-July.
Intercolonial Quarterly Journal of Medicine and Surgery,—Feb.
International Medical Magazine,—Jan-Aug.
Janus,—July, Aug.
Journal de Médecine de Paris,—Jan. 5-Sept. 20.
Journal of Anatomy and Physiology,—Oct.-July.
Journal of Cutaneous and Genito-Urinary Diseases,—Jan.-Sept.
Journal of Eye, Ear, and Throat Diseases,—July.
Journal of Mental Science,—April, July.
Journal of Nervous and Mental Disease,—Jan.-Aug.
Journal of the American Medical Association,—Jan. 4-Sept. 5.
Journal of the British Dental Association,—Jan. 15-Sept. 15.
Journal of Experimental Medicine. Vol. I. Nos. 1 and 2.
Klinische Monatsblätter für Augenheilkunde,—Jan.-Sept.
Liverpool Medico-Chirurgical Journal,—Jan.-July.
L'Indépendance Médicale,—Jan. 22.
Manhattan Eye and Ear Hospital Reports,—Jan.
Mathews' Medical Quarterly,—April, July.
Medical Chronicle,—Jan.-Sept.
Medical Magazine,—March.
Medical Pioneer,—Jan.-Sept.
Medical Press and Circular,—Jan. 1-Sept. 23.
Medical Record,—June.
Medicine,—Jan.-Sept.
Merck's Market Report,—Jan. 7-Sept. 1.
Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie, Band i., Heft 1, 2.
Montreal Medical Journal,—Jan.-Aug.
Morningside Mirror,—Jan. 15-June 15.
New York Medical Journal,—Jan. 4-Sept. 12.
New York Medical News.—Jan. 4-Sept. 5.
New York Medical Record.—Jan. 4-Sept. 12.
New York Polyclinic,—March 15.
New York Post-Graduate,—Jan.-Aug.
Nordiskt Medicinskt Arkiv,—Band vi., Heft 1, 2.
Nursing News and Hospital Review,—Jan.-May.
Occidental Medical Times,—Jan.-Aug.
Pacific Medical Journal,—Jan.-Sept.
Pediatrics,—Jan. 1-Sept. 15.
Philadelphia Medical and Surgical Reporter, Jan. 4.-Aug. 29.
Philadelphia Polyclinic,—Jan. 4-Sept. 5.
Philadelphia Universal Medical Journal,—Jan.-Aug.
Phonographic Record of Clinical Teaching and Medical Science,—March.
Photographic News,—Jan. 3.
Practitioner,—Jan.-Sept.
Proceedings of the Society for the Study of Inebriety.—Jan.-Aug.
Quarterly Medical Journal for Yorkshire and adjoining Counties.—July.
Quarterly Therapeutic Review,—April.
Reports by the Medical Officer of Health, and Sanitary Inspector, Aberdeen,—Jan.-Aug.
Revue de Chirurgie,—Jan.-Sept.
Revue de Thérapeutique Médico-Chirurgicale,—Jan. 1-Sept. 15.
Science Progress,—Feb.
Sei-i-Kwai Medical Journal,—Jan.-July 11.
South African Medical Journal,—Jan.-April.
The Hospital,—Jan. 4-Sept. 19.
The Medical Age,—Jan. 7-Aug. 25.
Therapeutic Gazette,—Jan 15-Aug. 15.
The Physician and Surgeon,—April.
Upsala Läkareförenings Förhandlingar, Band xxxi., Heft 1-7.
Virchow's Archiv,—Band 144, Heft 1-3; Band 145, Heft 1, 2.
West London Medical Journal,—Jan.-July.
Yale Medical Journal,—March.

Part First.

ORIGINAL COMMUNICATIONS.

I.—BRAUNE'S OS INTERNUM AND THE RETRACTION RING.

By A. H. Freeland Barbour, M.D., F.R.C.P. Ed.

(*Read before the Edinburgh Obstetrical Society*, 12*th February* 1896.)

The Venezuela frontier question has not given rise to more discussion than the delimitation of the area of the body of the uterus in labour. The story of the dispute with Venezuela goes back to the map on which Schomburg drew his now famous line. The discussion which has gone on for five and twenty years round the disputed area in the lower portion of the uterus goes back to Braune's classical section, and a line on it which he labelled the Os Internum. Like the old map, this section has raised a dispute which it is powerless to settle. Braune himself has said [1]—"That he could not recall all the particulars which led him and Schatz to mark the line in question *orificium uteri internum*." No microscopic examination of the tissues was made, and the soft parts had to be destroyed so as to construct the bony skeleton.

It is not my intention to follow this discussion through its various phases up to the solution which Schroeder has given, that the ring which Braune called the os internum marks the lower limit of the active contracting portion of the uterine wall, and not of the uterine cavity. That is to say, that the os internum lies in Braune's section, not where he indicated, but at some point in the territory below.

It seemed for a time as if Schroeder's delimitation had settled this frontier question. But the text of Zweifel's Atlas [2] and Doderlein's more recent article, which I have already referred to, show that it is still a *quæstio vexata*. This is one reason for my opening the question here. Another reason is that Dr Webster and I have never published the microscopic evidence which led us to describe the prominence in the muscular wall of the uterus in our section as the retraction ring, and the subsequent examination of which allows us to define approximately the os internum.

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[1] Sänger—*Ein letztes Wort sur Cervixfrage*, quoted by Doderlein in *Die Ergebnisse der Gefrierdurchschnitte durch Schwangere*: Wiesbaden, J. F. Bergmann.

[2] *Zwei neue Gefrierschnitte Gebärender*, von Dr med. Paul Zweifel, Leipzig 1893.

In this paper I shall first criticise the statements of Zweifel and Doderlein, and then give the anatomical data as regards our own section.

Zweifel's two sections from ruptured uterus and placenta prævia form the first demonstration we have had of the genital tract dilated throughout, from fundus to vulva, the child being in both cases partially born. I described these sections in a former paper, and here restrict myself to the point in question.

The section from a case of placenta prævia[1] is the most significant, and in the text he says: "The situation of the os internum is in the second preparation fixed easily and with great certainty. It is the fold which runs at the level of the promontory towards the anterior abdominal wall. A large vein is not present at this place. But the determination of the os internum from the position of the so-called circular vein of authors must be given up, since Braune himself has revoked his former view that at this point, as a rule, there lies a large vein running round. Also the attachment of the peritoneum is of no value in this second preparation. So much more certain as a guide is the microscopic examination of the mucous membrane. Above the ring, which is plainly seen, is decidua; below it, cervical mucous membrane. Up to this ring there are attached on the right side of the body the membranes. The os internum was traversed without difficulty in turning. The os externum remained long undilated, apparently on account of a rigidity, the patient being a primipara, aged thirty years."

In the genital tract from the case of rupture of the uterus, Zweifel does not mark the os internum. The text runs as follows:—"The situation of the os internum must, in the first preparation, be determined by the attachment of the membranes. The distance from the os internum to the os externum measures, in the mesial section on the anterior wall, 75 mm. If we measure the same distance on the posterior wall from os externum upwards, we come to the seat of the tear. So that this occurred at the transition from the os internum to the musculature of the body."

In the section of the text on "The Lower Uterine Segment and the Cervix during Labour," he says in reference to the discussion as to whether the cervix could stretch to the extent indicated in Braune's section: "The two new frozen sections give microscopically quite sufficient and infallible proof that such an enormous stretching of the cervix is possible, and is present as a matter of fact in both preparations." Of Schroeder's view he says: "This view can no longer be maintained. What he has described as the contraction ring is not only the os internum of Braune, but the actual true os internum of all anatomists and obstetricians."

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[1] Reproduced in the *Atlas of the Anatomy of Labour*, third edition, plate xxvi.

All we can do with these sections and the text before us is to return a verdict of not proven. We infer from the text that the microscopic examination was only made in the second case, and the facts mentioned as to the attachment of the membranes are a very strong evidence that this ridge cannot be the os internum. Before labour the membranes are attached up to that point, but during the first stage they become separated to the extent necessary to form the free bag of membranes. Chiari gives the amount of the separation as about 4 cm. on the anterior wall—that is to say, the line of attachment of membranes is 6·5 from the os externum, of which 2·5 was covered with cervical epithelium, the remaining 4 cm. with decidua. It is therefore evident that the os internum must lie some distance below the line of attachment of the membranes. In the placenta prævia case the hand was passed into the uterus, so as to turn and extract the child, which would further detach the membranes. So that against the fact of cervical epithelium below the ridge which Zweifel calls the os internum we must set his statement that on the right side the membranes were attached up to this region. With regard, therefore, to the demonstration from these sections that the ridge in question is os internum, we return a verdict of not proven.

Doderlein keeps the question of os internum *versus* retraction ring specially before him in his very interesting review of the results obtained from frozen sections. Speaking of Braune's section, he says: "How much trouble and time would have been spared, how much quarrelling avoided, if only a single microscopic section could have been made of the part of the uterus below the much disputed Braune's os internum." After referring to what Sänger says, and Zweifel's statement that Braune kept to his position that that really was the os internum, and was embittered because of the want of belief in this assertion, he says that "the only fact that remains is that Braune did not fix his os internum on grounds which are to-day considered valid."

In speaking of Chiari's section, and apparently admitting the correctness of Chiari's demonstration of the os internum for his own section, he says: "The whole demonstration given by Chiari from this preparation, against Braune's view of the os internum, appears untenable, because there is no proof that the point marked + in Chiari's preparation corresponds to that which Braune calls the os internum." He says, further, that no importance can be attached to the presence of the veins, that the folding of the membrane is an accident, and that the spirit-hardened preparations show no marked thickening at the os internum. From these considerations he concludes that "Chiari's section in no way proves that in Braune's section the os internum is wrongly given, and that this section of Chiari's is of no value as to the question of the origin of the lower uterine segment, and for the existence of a contraction ring."

To these conclusions it may be replied that Chiari does not use the presence of the vein to mark the os internum, but to aid in the identification of similar places in the uterus described by him, and that by Braune. Large veins may or may not be seen in a section of the uterine wall, but when present they are one of the many signs marking the commencement of the body of the uterus proper, in contradistinction to the lower segment. Doderlein was right in saying that there is no marked bulging of the muscle in Chiari's as there is in Braune's section. But this just amounts to a statement that a retraction ring may or may not be present. He does not give Chiari full credit for the absolute demonstration that whatever happened in the case from which Braune's section was made, in the one from which his preparation was taken the cervix only elongated to a little more than 2 cm. And, looking at the thickness of its walls, one does not see how it could possibly have stretched to five times that extent,—that is, to the 11 cm. of Braune's section.

Commenting on Schroeder's first stage section, Doderlein suggests that the swelling and thickening of the uterine wall, which Schroeder calls the contraction ring, may be due to the curvature of the wall round the pubis, and questions the existence of a contraction ring in this specimen. But he apparently admits it for the section post-partum, because in referring to the measurements of the uterine wall he says: "These are very important figures which for this puerperal uterus appear entirely to justify its division into three parts—body, cervix, and lower segment between them."

Referring to my own sections and those made along with Webster, he says that what Braune took to be os internum I describe as contraction ring, and that I could not find the seat of the os internum, because I did not examine the tissue microscopically. "On this omission the value of the preparation is wrecked. . . . This is the more to be pitied, as this very preparation would have been of great significance in giving evidence on this point." The text of our paper runs: "The os internum cannot be accurately placed, the parts *not* having *yet* been *examined microscopically*." Also, I have called the swelling of the uterine muscle not contraction, but retraction ring. The reason for this I shall give after a description of the microscopic sections.

Results of the Examination of the Microscopic Sections.

When examining the marks in the cavity of the uterus, after the fœtus has been removed from a frozen section, we must remember that the plastic uterine wall moulds itself to a certain degree on the irregularities of the fœtus. It is interesting in this connexion to compare the behaviour of the uterus in the first stage with that in the second. We may say, generally, that while the first stage uterus tends to mould itself on the surrounding structures—spinal column and bony pelvis—the second stage uterus tends to mould itself on the contained fœtus. This is due to its plasticity, and may be also in part a post-mortem change. Bulging of the uterine muscle, therefore, in the cavity must always be scrutinised in its possible relation to depressions in the fœtus. But after due allowance has been made for this, we find certain prominences of the uterine wall that cannot be thus explained. Take, for example, this section of the posterior wall of the uterus from our second stage case. Gradual hardening in spirit tends to remove the adventitious thickening from unequal pressure of the fœtus. We see here a sudden transition from the thick to the thinner portion of the uterine muscle, and it is interesting to note that the membranes are attached down to this thickening, but below it are separated. Beneath the point of separation fragments of them are present, and still lower down portions of cervical glands which are most numerous at the fold representing the posterior lip of the cervix. Below this we find vaginal epithelium. In the absence of the surface epithelium of the cervix, it is impossible to say precisely where the os internum lies. All we can say is, that it must be above the place where the cervical glands are seen, and where fragments of membranes are found. It must also lie at a certain distance below the line of attachment of the membranes, that distance corresponding to the surface of membranes which became free to form the bag of membranes in the first stage.

Comparing now the microscopic section[1] with the frozen section, we find that the bulging in the former is at a shorter distance from the os externum than in the latter. I do not think that this can be accounted for by the shrinking of the parts in alcohol, but that it means that the thickening which I have called retraction ring should really be marked a little lower than appears in the frozen section, and that the bulging in the latter is in part due to the inequality of the surface of the child. I have intentionally indicated in the figure a *region* of the os internum, as I do not think that in frozen sections we can expect to define it with the same precision as in the pregnant uterus. When we consider how the cervix is stretched and lacerated, and how its bruising must tend to destroy the surface epithelium; and, further, how the freezing of the fresh tissues breaks them up, and the thawing while the drawings are being made macerates the tissues, we cannot expect very precise results from microscopic examination. Still we get sufficient to justify our saying authoritatively with regard to this case that the posterior wall shows a sudden increase in its thickness at or a little below the point marked in the frozen section as the retraction ring; that the membranes are adherent down to it; that this point is not the os internum, but that the latter lies in the region indicated, and that the cervix has stretched vertically not more than 1·5 in.

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[1] See Plate xxiv. of the *Atlas of the Anatomy of Labour as Exhibited in Frozen Sections*, third edition.

The examination of the section of the anterior wall shows that the membranes are adherent down to the point indicated in the figure. The area still higher up, over which they are absent, corresponds to the placental site. Below the line of their attachment we find that the uterine surface has only shreds of them on it here and there, and only lower down do we come on fundi of cervical glands. The plate-like arrangement of the muscular fibre at the point indicated in the figure is another proof that here we have still to do with lower uterine segment, the texture being quite different from that in the cervix, the bundles of which are separated by fusiform spaces containing connective tissue.

A microscopic examination, therefore, of this section justifies the assertions with regard to it that there is a retraction ring, that the os internum lies at a distance below, and that the cervix is only from about 1·3 to 1·7 in. long.

Retraction v. *Contraction Ring.*

As regards the name given to this thickening of the uterine muscle, retraction ring is a much more accurate and suggestive term than contraction ring. Further, it is wrong to look for it in the pregnant uterus. All we find there is a suggestion as to *the place where it will probably develop when retraction has occurred in labour.* The term retraction ring suggests its nature better than contraction ring. Contraction is temporary, and will only be found in a frozen section in which the patient has died during a pain. Retraction is permanent, and will always be registered in a frozen section. Further, it is to retraction that its clinical significance belongs. It is to the fact that one portion of the uterine muscle has become permanently shortened and thickened at the expense of the lengthening and thinning of the part below it, and the consequent risk of rupture in the same portion, that this change in labour comes to be of importance, as was first pointed out by Bandl.

II.—THE DIETETIC VALUE OF FAT IN DIABETES.

By James C. Dunlop, M.D., F.R.C.P. Ed.

(From the Laboratory of the Royal College of Physicians, Edinburgh.)

A diabetic is an individual who, for some reason which at present is not fully understood, is unable to utilize the whole or part of the carbohydrates supplied to him in his food or from the metabolism. As the carbohydrates are an important source of the energy necessary for the carrying on of his vital functions and other work, to replace them by other food stuffs which can be utilized, and which are able to supply the necessary energy, is the object aimed at in arranging a suitable diet for such a person.

The ordinary means adopted for supplying this necessary energy is to feed the patient on a diet very rich in proteid. Such a diet is always most trying. From the fact that it taxes the kidneys to so great an extent by increasing the amount of urea and other nitrogenous bodies it is not suitable for a long continuance. If such a proteid diet be not excessive, the inevitable result is that there is a consumption of the tissues to supply energy, and rapid emaciation follows; this has led Weintrand to formulate the dictum that in diabetes azoturia is more dangerous than glycosuria.

Azoturia is not an essential symptom of diabetes. Weintrand has fully discussed and proven this (*Bibliotheca Medica*, D^1, Heft 1.) In diabetes the nitrogen excreted is proportional to the amount of nitrogen taken in the food and derived from wasting of the tissues, as it is in health; supply a diabetic with suitable food to yield his energy, then the nitrogenous output will not exceed the nitrogenous intake.

If a diet entirely proteid be considered not a desirable one, then there are only two classes of food stuffs which may be added to correct it—the one carbohydrate, the other fat or oil. The use of carbohydrates is necessarily limited by the large amount excreted unchanged; and the desirability of giving them, either in restricted or excessive quantities, I shall not discuss, but confine myself to the discussion of the alternative source of energy—fat and oil.

With a healthy subject fats and oils have undoubtedly great potential energy; they contain a large quantity of carbon and hydrogen, and only little oxygen, and consequently their complete combustion into carbonic acid and water produces a high caloric equivalent. Their energy value is great; this is undoubted, though recent research—Karserer (v. *Noorden's Beiträge zur Lehre vom Soffwechsel*, Heft 1)—has shown that their actual is less than their theoretic energy value. That observer brought himself into a condition of nitrogenous equilibrium on a diet of proteid and carbohydrate; he replaced some carbohydrate by its theoretic equivalent of fat, and found that he no longer maintained his nitrogenous equilibrium, losing more nitrogen than he took in, and losing weight. His work tends to reduce the value credited to fat as an energy yielder, but does not abolish it; fat has a great energy value, is capable of giving up its energy in the metabolism, and is undoubtedly a powerful nitrogen sparer.

The nitrogen sparing action of fat is the power fat has of enabling a subject to maintain his activity and weight on a diet containing less nitrogen than he would require if no fat were in the diet.

The value of fat in diabetes has previously been studied by Weintrand (*loc. cit.*), and by von Mehring (*Zeitschrift f. klin. Med.*, Bd. xiv.), both of whom succeeded in showing that in that abnormal condition fat has a nitrogen-sparing action similar to that which it has in health. It was to test this conclusion that the following observations were made.

The subject was a man, æt. 50, admitted to the Royal Infirmary several weeks previously, suffering from severe diabetes. I am indebted to Dr James for his kindness in allowing me to regulate his diet and examine his excretions. His illness was of four months' duration; he was very considerably under his normal weight. During the six weeks previous to my observations he had been dieted on skim milk, and had got considerable relief from that treatment. He was taking no drugs at the time of observation.

The time of observation was divided in four periods, each of three days. In the first and third periods his diet was 4660 c. c. of skim milk, no extras being given; in the second and fourth periods, in addition to that quantity of milk, 170 c. c. of olive oil were given him daily, divided into three rations. One was given in the morning, one in the middle of the day, and one in the evening.

The milk was analyzed five times as to the amount of nitrogen it contained, and this was found to average ·53 per cent., the variations being very slight. His total consumption of nitrogen was ·53 grms. × 46·6 = 24·8 grms.

The urine was collected with all possible precautions to avoid fallacy, was well mixed, and fair samples of the twenty-four hours' urine were analyzed—(1), as to the amount of nitrogen by Kjeldahl's method; (2), as to the preformed ammonia by Schlössing's method; and (3), as to glucose by the polarimeter.

The fæces were kept, and on the first eight days, the sixth excepted, were dried with dilute sulphuric acid, and their nitrogen estimated by Kjeldahl's method. This was discontinued after the eighth day, as it was considered unnecessary, the loss of nitrogen in the fæces being a very constant quantity. The fæces of the sixth and twelfth days were dehydrated by alcohol, and the oil and fat contained estimated by Soxhlet's method. These days were selected as being the last days of the two periods when oil was given, since the fæces would naturally contain the largest amount of fat.

The results of analyses, etc., are shown in the following tables:—

Table showing Result of Examination of Urine, Fæces, etc.

Period.	Day.	Urine.					Fæces.		Food.		Weight.
		Quantity in c.c.	Sp. Gr.	Total Nitrogen.	Ammonia preformed.	Glucose.	Nitrogen.	Fat.	Nitrogen.	Additional Oil.	In Kgrms.
				grms.	grms.	grms.	grms.	grms.	grms.		
I.	i.	5100	1019	18·87		143	·20		24·8		41·8
	ii.	4750	1023	17·57	1·03	145	·49		24·8		42·0
	iii.	4650	1024	21·80	·69	151	·47		24·8		41·8
II.	*iv.	3230	1022	10·49	·22	98	·47		24·8	170	41·8
	v.	5350	1022	21·52	·69	151	·41		24·8	170	42·2
	vi.	5200	1020	22·05	·44	147		3·53	24·8	170	42·2
III.	vii.	4600	1026	23·96	·42	200	·44		24·8		42·1
	viii	4900	1026	22·43	·51	191	·32		24·8		42·2
	ix.	5350	1024	26·09	·44	216			24·8		42·3
IV.	x.								24·8	170	42·5
	xi.	5340	1028	27·10	·53	244			24·8	170	42·4
	xii.	4290	1028	23·03	·52	177		8·01	24·8	170	42·3

* *Note.*—In calculating the averages and the balance the figures of the fourth days are omitted, as they are all so small that some mistake in the collection of the urine is almost certain.

Table showing Averages.

	Urine.				Fæces.
	Quantity.	N.	NH_3.	$C_6H_{12}O_6$.	N.
I. and III. periods, No oil.	4891	21·8	·62	174	·38
II. and IV. periods, Oil.	5045	23·4	·48	179	·44
Effect of oil.	+ 154	+ 1·6	—·14	+ 5	

Table showing Nitrogenous Balance.

INTAKE.	N.	OUTPUT.	N.
10 days' food at 24·8,	248	10 days' urine, ...	224·5
Less 10 days' fæces at ·4,	4	Add equivalent of increase of weight as flesh, 444 grms. flesh, = . . .	15
	244		239·5

A scrutiny of these tables shows that the man was practically in a state of nitrogenous equilibrium, and consequently in a condition favourable for making these observations. His powers of absorption were good. Analysis of his fæces showed that only 0·4 grms. of nitrogen were on an average lost per diem; his food contained 24·8, so he absorbed 98·4 of that amount—a very high proportion. He absorbed the oil equally well, the average loss being only 5·8 grms. per diem, showing that he absorbed 96 per cent.

The effects of the oil are best seen by the examination of the table of averages. A glance at it shows that they have not been great. The diuresis was slightly increased by the oil, not diminished; but the increase was so small—about 3 per cent.—that it may be considered insignificant.

The total nitrogen of the urine was, contrary to what was expected, not favourably influenced. There was no diminution, no sparing of nitrogen to enable it to be used in repairing the emaciated tissues; there was actually an increased excretion, amounting to 1·6 grm. per diem. This increase was not large; from it it would be hardly fair to argue that the administration of oil increases the nitrogenous metabolism; but from these figures it is fair to argue that in this case the oil did not diminish the nitrogen in the urine, and did not thus act as a nitrogen sparer.

That it is possible for fat or oil to increase tissue waste, and so increase the nitrogen of the urine, is shown by observations of Nasse (*Pflüger's Archiv*, Bd. 41, p. 236). He administered daily to a dog a certain quantity of phenol, and found a certain proportion excreted unchanged in the urine. He then in addition gave the dog a large quantity of fat, and found less of the phenol was excreted unchanged, showing that more had been oxidised, and that the administration of fat had increased the oxidising power of the system. Such an action might well explain the small rise observed.

It might be urged against my conclusion, that oil in this case did not spare the nitrogen, that the periods were too short to show the full effect. This may be so, but surely were oil a nitrogen sparer, and given and absorbed in such large amounts, there would have been some observable change produced by the third day of the periods or on the following day.

The only nitrogenous body in the urine which I estimated separately was preformed ammonia. I did so because that excretion has received special attention, and by Hallevorden (*Archiv f. exper. Pathol.*, xii., 1880, 237) and others, and has been found to be increased. This case shows no increase: in the no-fat periods the average was only ·62 grm. per diem,—a quantity well inside the normal limits. The effect of the oil was to reduce this average slightly. There was not much room for reduction, the original quantity being so low; and further, the reduction appears greater than it really was, as on one no-oil day, the second, it was unaccountably exceptionally large, and if that day be excluded, then the reduction only amounted to ·08 grm. per diem,—an insignificant quantity.

The amount of glucose in the urine was not materially affected, the average remaining almost constant. In this my observations agree with those of Weintrand, and not with those of von Mehring, who found a marked diminution. These observations certainly appear contrary to Seegen's theory as to the conversion of fat into sugar by the liver (*Zeitschrift für klin. Med.*, 1887). Were this the case, then oil would certainly increase the excretion of glucose in diabetes; but both these and the other observations quoted show this not to be the case.

From these observations it may be concluded that the administration of fat or oil for a period of three days, even in large amount, does not decrease the proteid waste in diabetes. But whether a more prolonged administration would so act, it is impossible to say. The subject is one well worthy of further study. The oil was not converted into sugar, and must either have been stored up for future use, or must have been burnt up to yield a greater supply of energy. And thus, though not acting appreciably as a nitrogen sparer, oil or fat may be of very considerable use to a diabetic with his limited *store* of energy producers.

These observations were commenced in the Laboratory of the Royal College of Physicians, but owing to the fire which recently destroyed the old building they had to be discontinued there, and were carried on in the Chemical Laboratory of Dr Stevenson Macadam; and I take this opportunity of expressing my thanks, which are due to him, of so kindly putting laboratory accommodation and appliances at my disposal.

III.—EXPERIMENTAL RESEARCH INTO THE ACTION OF *VIBURNUM PRUNIFOLIUM (BLACK HAW).*

By THEODORE SHENNAN, M.D., Pathologist to the Leith Hospital.

(*Read before the Obstetrical Society of Edinburgh*, 11*th December* 1895.)

VIBURNUM PRUNIFOLIUM was first brought into notice in the United States of America, attention being drawn to it by tales of its virtues current on the plantations. Among the negro population it was believed that had a woman eaten the berries or drunk of the infusion made from the root-bark, it was impossible to make her abort, even though this were tried with criminal intent. Allowing for exaggeration common to the negro mind, it seemed to be worth while to make a proper extract, and apply it in skilled hands as an agent for prevention of abortion or premature labour.

Summary of Literature.

The literature of Viburnum prunifolium is almost wholly clinical, and as such it is difficult to draw conclusions as to its physiological actions.

Dr Phares of Newtonia, Miss., has the credit of initiating its use. His paper, published in 1866, recommended it as astringent, diuretic, tonic, antispasmodic, but chiefly as a remedy for dysmenorrhœa and as a preventive of abortion.

Little more is heard of it until 1876, when Dr Jenks, of Detroit, revived its use. He employed it in menorrhagia, metrorrhagia, and dysmenorrhœa with menorrhagia. He attributed a great deal of its value to the presence of a body similar to valerianic acid.

Rockwell, 1879, used it in dysmenorrhœa. He considered it was indicated in delicate, nervous women in whom pain is due to slight anteflexion, slight endocervicitis, partial stenosis, or where it is neuralgic in character. He classed it as anodyne, antispasmodic, and tonic. The last term, to my mind, is very indefinite, though in one of my cases I noticed a relief of nausea or sickness, which relief followed the administration of viburnum.

Abbot, 1879, used it in dysmenorrhœa with great success, as also Curtis (1879) and Lyman.

Chadwick, 1879, found it give relief in many cases, but success was not invariable, or as brilliant as previous papers had led him to anticipate. Its action was similar to, but not superior to that of zinc valerianate.

J. H. Wilson of Liverpool, 1885, seems to have introduced it into this country. He found it useless in syphilitic cases, or where the placenta was fatty, or when the os was gaping and the ovum presenting. He found it beneficial in habitual abortion, and even in cases where there were pains and hæmorrhage with dilated external os, and suspicions of partial separation of the ovum.

It was not necessary to keep the patient in the recumbent position for more than a few days.

M'Fie Campbell, 1886, used it in threatened abortion, preferring it to opium or ergot, which often disappoint in their action, the former being frequently followed by expulsive pains, and the latter by a prolonged calm.

Leith-Napier, 1886, after reviewing some cases—*e.g.*, menorrhagia, dysmenorrhœa, abortion—treated with viburnum, concluded that it was preventive in habitual abortion, if given with a view to regulate uterine action, rather than as an arrester of the immediate cause of abortion; but he had had as good results with other drugs, *e.g.*, potassium chlorate.

W. E. Green, 1886, refers to a note by Dr Roe of Beachville, Illin., in the *Americ. Therap. Gaz.*, 1883. This is the description of how a woman, after repeated abortions, was enabled by use of viburnum to proceed to term, though there was a serious attempt at abortion.

Dr I. M. L'voff, 1886, describes fifteen cases (non-syphilitic) of attempted abortion treated with viburnum. Nine of these were habitual, and all were successful. In the six other cases there were already signs of impending abortion,—hæmorrhage, shortening of cervix, dilatation of os, and slight spasmodic pains in the uterus. They were also successful. Many of the women were poor and had to attend to their household duties.

Roberts, 1887, describes the case of a lady, an habitual aborter, who, by using viburnum, was enabled to go to term and be delivered of a living child.

Auvard, 1887, used a strong tincture as a uterine sedative, calming and arresting uterine pains. He found that—

1. When the waters were broken, even at the 6–7 months, the fœtus could be retained.
2. The fœtus could be retained even if dead.
3. It was useful in abortion or premature labour, even where the mother had severe intercurrent illness.
4. In post-partum pains, whether the uterus contained clots or not, it acted as a sedative, so that its use might be fraught with danger in the puerperium, unless in addition there were careful uterine douching with a two-way catheter.
5. In Gynæcology—in dysmenorrhœa, and the hæmorrhages of the menopause.
6. In colicky diarrhœa, probably by quieting the contractions of the muscular walls of the intestine.
7. Locally, in conjunctivitis, aphthæ, chronic diarrhœa, dysentery, indolent ulcers, probably owing to the tannin contained.

He prefers it to opium, which, though equally effective, has its dangers.

Schatz, 1888.—It cannot be so often employed as hydrastis; useful in habitual abortion; better than opium or bromide of potass, though opium was required when strong pains had already begun. He found cases where, by use of viburnum, dead ova were retained in the uterus for months. It does not act quickly or powerfully enough to be applicable in cases of labour coming on suddenly. He thinks that it acts by stimulating inhibitory nervous centre of uterus.

Payne, R. L., read a paper on Viburnum prunifolium before the Medical Society of North Carolina, 1888, from which I extract the following. This is one of the few papers which treat the subject scientifically, and describe experiments carried out on the lower animals. He refers to the literature of viburnum, and the want of definite rules for its use. He experimented with the ordinary alcoholic liquid extract; or with the solid extract rubbed up with water, with the view of getting rid of the vitiating effects of the alcohol contained in the fluid extract. He found that both had a similar effect. His results were as follows:—Paralysis, loss of reflex motion, both with mechanical and chemical stimuli. He got reactions with electrical stimuli—whether faradic or galvanic it is not stated—one pole to the spine, the other to the limb. He gave as much as ʒiv. of the fluid extract to rabbits, and the amount of alcohol contained must undoubtedly have had an effect on the tracing. I think that my experiments on rabbits prove this. In rabbits (solid extract used, rubbed up with water), the blood-pressure was found to fall very rapidly after injection of a syringeful into the jugular vein. I have also to find fault here, in that evidently no care had been taken to make the fluid neutral or slightly alkaline, and that the resins, which are present in considerable quantity, were not removed before injection. His tracings show a marked effect on blood-pressure, but at parts suggest, by the weakness of the heart curves, that there may have been some clotting in the cannulæ. There was evidently no balancing of pressure in the vessels by use of a column of mercury, and as the blood was thus allowed to pass for some distance into the tube leading to the recording apparatus, the tendency was for it to clot. I found this clotting to be very troublesome in my own experiments.

He concluded that "there was no effect on sensibility. The chief action was on motion, paralysis, loss of voluntary motion, loss of reflex power, the extent being governed entirely by the amount of the drug used. The pupils contracted in cold-blooded, did not change in warm-blooded animals. Muscular irritability lost after lethal doses, but nerve conduction lost before muscular contractility. Probably the action was chiefly on the spinal cord and its posterior columns. The heart quick and feeble, blood-pressure lowered; in lethal doses heart stops before respiration."

He recommends its use in diseases with increased excitability of the motor centres,—hysteria, hystero-epilepsy, *petit mal;* in paralysis agitans, the dysmenorrhœa sometimes designated ovarian or spasmodic. He asserted that it is harmful in menorrhagia due to congestion of portal circulation, subinvolution of uterus, metritis, erosions of cervix, fibroid tumours. It is preventive in abortion, and very useful in habitual abortion. It has a paralyzant action on the uterus.

J. Hinton, Detroit, 1889, applied it for the control of false pains, and even of labour pains. He has never observed post-partum hæmorrhage or severe after-pains when using this drug.

Parker used it for the irregularities of menstruation.

Joseph, of Landeck, in Schlesien, has an important paper on the subject. He recommends it very strongly in virginal dysmenorrhœa. He used it in two cases of habitual abortion, which were unsuccessful; but he does not consider this sufficient trial. Of the forms of dysmenorrhœa, that is most relieved which is brought about by mechanical obstruction; for example, congenital or acquired anteflexion, as opposed to congestive dysmenorrhœa, which is more common in married women. The amount of the flux was diminished, and sank to normal; moreover, the remedy changed the interrupted course to one more continuous. He recommends it as an antispasmodic, and not only in uterine or intestinal colic, but also in other conditions of cramp, such as of voluntary muscles.

Such are the more important papers which have appeared on the subject.

I may supplement these with a few cases taken from a brochure containing reports on the use of Viburnum prunifolium, which Messrs Parke, Davis, & Co., of Chicago, sent me.

Dr Boal prefers viburnum to opium in many cases, as more easily borne and readily retained by the stomach. It is very beneficial in spasmodic dysmenorrhœa, curing the patient, and gives relief when dysmenorrhœa is due to flexion or stenosis. It relieves pain preceding and during menstruation, which are generally treated with opium or alcohol. Even if this one action were proved, and it were able to take the place of these powerful remedies, and so prevent the formation of the opium or alcohol habit, viburnum would be very serviceable.

Blackerby used it in habitual abortion, and cites a very conclusive case. A patient of his had had six abortions. Viburnum was administered during the whole of the seventh pregnancy, which went to term, and ended in the birth of a living child. The eighth pregnancy had a similar result under similar treatment, but the ninth ended at the seventh or eighth month, and Dr Blackerby found that viburnum had been given up, on the assumption that it had had nothing to do with the previous results. It is useful also in preventing abortion after injury.

Roe.—Great relief obtained in false pains, with bearing-down and frequent desire to micturate and defæcate. After-pains are readily stopped.

The report by Dr Griffin of Louisiana is of great interest. He was going to administer fluid extract of Viburnum prunifolium to a patient who was threatened with abortion after an accident. Her mother-in-law remarked that if she had the patient at her home she would not have much difficulty in stopping the abortion. On being questioned as to what her treatment would be, she replied that it would be administration of a tea made from the roots of the black haw.

Houston considers Viburnum prunifolium useful in irritable uterus, due to nervous action caused by over-exertion, fright, mental worry. Benefit is often increased by adding tincture of valerian or ammonium valerianate.

Many other cases are related which I need not further specify, where relief has been obtained in threatening abortion after over-exertion, *e.g.*, at the wash-tub, or from too much horseback exercise, or after falls and other injuries. The sources of these various papers are indicated in the list of authors.

Indications for the use of VIBURNUM PRUNIFOLIUM.

In *habitual abortion*, where this is not caused by syphilitic infection or by fatty placenta, there seem, undoubtedly, good results to follow the use of Viburnum prunifolium.

In *threatening abortion*, however caused, and at any period of gestation, if the case is got soon enough, it seems to be very successful.

In *dysmenorrhœa*, if functional, spasmodic, or ovarian, or attended with menorrhagia, it often cures. If there is flexion or stenosis, it gives great relief, though, of course, it cannot cure.

In the menorrhagias and metrorrhagia of the *menopause* and in the nervous disorders of that time it is very beneficial.

After-pains are so readily relieved by it, that some (*e.g.*, Auvard) consider that its use is dangerous unless all clots are cleared out of the uterus previously.

It may be used in the diagnosis of *false pains*, speedily relieving them.

It is also used with success in *colicky diarrhœa* and in *dysentery*. Some even claim that it has a curative effect on cramps of voluntary muscles.

Botanical Description.

We may speak of Viburnum as a class of which there are many species. They are generally tree-like shrubs, with beautiful white or rose-coloured flowers, and grow in temperate or cold parts of both continents—Europe and America—preferably in mountainous or wooded places.

There are about eighty known species, the great majority of which are of no great interest from a medical point of view. It will be interesting, however, at a later stage to refer to a few of them which, as they will be somewhat familiar and met with by ourselves, may, by the interest attached to them, cause greater interest to be taken in Viburnum prunifolium, the member of the group which I specially consider. Some of the other members of the group are also used medicinally.

Viburnum prunifolium is a shrub which sometimes becomes tree-like, beautiful from its foliage, and in spring from its white, clustering flowers. It may attain the height of 18 to 20 feet. It grows most luxuriantly in the Southern States of North America, on the banks of the Mississippi,—in Florida, Virginia, Carolina, and Texas. It is also found widespread, but of smaller size, in Canada. It is cultivated in Europe under the name *Black haw*, *Aubépine noire* (Fr.), as an ornamental shrub. The German *Schneeball*, American and English *Snowball*, is also very closely allied to it. It belongs to the class Caprifoliaceæ.

The trunk and root are four-angled. Branches opposite, or three to four whorled. The leaves are broadly oval, obtuse at both ends, finely and sharply serrate, shining above, and smooth below, with short, small marginate petioles. It flowers in May. The inflorescences are white, panicled, and have sometimes at their margins large, radiating sterile flowers. *Calyx*, short, five-notched, persistent. *Corona*, regular, five-lobate. *Anthers*, introrse or extrorse, five *Stamens*. *Ovary*, unilocular, surmounted by one short conical style, with two or three stigmatiferous lobes. *Fruit*, drupaceous, oblong, unilocular, containing a very flat crustaceous stone, which, in turn, contains a single pendent seed.

The *root-bark* is officinal in the United States Pharmacopœia, and is the only part from which preparations are made. Externally it is glossy, purple-brown, or, when older, grey-brown, with warts and little black dots scattered over the surface.

The *corky* layer, of papery thinness, scales off from the green sublayer,—the inner bark containing chlorophyll. The *bast* part is white, and its inner surface smooth.

The bark is rather brittle, has a weakly astringent, slightly bitter taste, and has a musty valerian odour.

In other members of the group, cells containing crystals are absent in the primary bark, and in the bast filaments of the inner bark; but in these parts of the Viburnum prunifolium large crystal cells, either singly or in clusters, are present (also, according to Holfert, in the middle bark). The crystals are of calcium oxalate.

The *medullary sheaths* are in one or two rows.

I may now glance shortly at some of the varieties of Viburnum, closely related to Viburnum prunifolium, with which we are familiar.

Viburnum opulus or *Guelder* (Gueldres) Rose, also known as —1, Schneeball; 2, Viorne obier or aubier; 3, Snowball tree; 4, Cranberry tree; 5, Cramp bark.

This is closely related to the Wayfaring tree, or Bog-Elder—Viburnum Lantana. It is very common in the British Isles, in Europe, and in temperate parts of Asia. It is a small shrub 6 to 12 ft. high, grows abundantly in wet woods, and flourishes in the middle of spring. If cut down it shoots again vigorously, and can cover marshy ground in a very short time. It is also used for hedges.

The leaves are smooth on the under surface, and three to five lobed. The flowers are small, white, and are arranged in large cymes. The outer flowers in each cyme are larger, and have neither stamen nor pistil.

In the cultivated variety all the flowers are changed in this way—barren—and the flattened cyme becomes a globular mass of white flowers, whence its common name of the Snowball tree. The leaves are much sought after by horses and hogs. The berries are red and juicy, and are eaten in spite of their astringency. In Sweden and Norway they are fermented with honey and flour before being used. A spirit is also distilled from them. The wood, white and soft, makes good charcoal for gunpowder. This variety of viburnum, on account of its great beauty, is used in ornamental landscape gardening (Larousse.)

Viburnum tinus.—Laurestinus, with its beautiful dark-green oval leaves, and its flowers white in the centre, red externally, arranged in corymbiform cymes, is much used in shrubberies. The fruit is said to be purgative.

Viburnum fœtidum is another species, more important medicinally than ornamentally. It is an Indian variety, and is considered valuable by the Hindu women as a hæmostatic agent in parturition. A wineglassful of the sap of the leaves is given. (Dymock.)

Viburnum odoratissimum (Ker) or *Cassinoides* (Linn.) is used in China to make a theiform infusion.

There are many other varieties which have not sufficient interest to claim our attention.

Chemistry and Constituents.

Little satisfactory has been accomplished in this field, though several observers, notably Krämer and Van Allen, have turned their attention to it.

Krämer, in 1844, obtained from the bark of Viburnum opulus (Cranberry tree) viburnic acid, which has also been obtained from the bark of Viburnum prunifolium, and has since been identified with valerianic acid. He also extracted a bitter principle which he called "viburnin," but which was not proved to possess the characteristics of the bark *in toto.*

Herman van Allen obtained:—1. A resinous body of a very bitter taste, which contained sugar. 2. "Viburnin" of Krämer, a greenish-yellow resin or natural principle of bitter taste, slightly soluble in water, freely in alcohol. 3. Valerianic acid. 4. Oxalic, citric, and malic acids. 5. Tannic acid. 6. Sulphates. 7. Chlorides of calcium, magnesium, potassium, and iron.

From my own work in this direction I found it very difficult to separate any distinct active principle. At least this much I may say, that I have obtained a body in solution—after processes calculated to remove all other substances except alkaloids, and not so severe in their action as to cause disintegration of any active principle—which gives precipitates with all the alkaloidal reagents in my possession, as I shall detail later, and which, in addition, has an action on the frog very similar to that of the whole drug (*v.* Experiment 16). It is just a question, however, whether there is not a combination of actions. The fluid extract, to a greater or less extent freed from alcohol, has been the preparation most generally used, with greatest and most uniform success. Now, this contains, in addition to the alkaloid, viburnic (*i.e.*, valerianic) acid, tannic acid, and other less important constituents. Though there may be a special action of the active principle, yet we must also credit the valerianic acid and the tannic acid, particularly the former, with some effect in treating patients, often excitable and hysterical, with this drug.

As a result of my investigations, by several different processes I separated a body giving alkaloidal reactions. This was a fawn-coloured syrupy substance. I obtained it only in small quantity, about ½ per cent. of the bark. When dissolved in absolute alcohol and dropped into ether, it was precipitated; but shortly after, the precipitate gathered as a syrupy layer on the bottom of the dish. It gave reactions with phosphomolybdic acid, phosphotungstic acid, Dragendorff's reagent, iodine in solution of iodide of potash, picric acid, tannic acid in neutral solution, potassio-iodide of cadmium. Colour reaction, green, with sulphuric acid with bichromate of potash crystals. Indefinite colour reactions with hydrochloric acid, nitric acid, and liquor ammoniæ. It gave no reaction of glucosides. It is not a volatile alkaloid; it cannot be obtained by distillation methods.

Viburnic acid is present in greater amount, and is easily separated by methods recommended for the extraction of valerianic acid. If redissolved and neutralized with soda, and again evaporated, stable crystals of the viburnate separated out, which have an odour similar to but not so strong as that of the acid.

The pure resin has the characteristic fracture, softens on heating, has very little taste or odour, is soluble in alcohol, alkalies, etc.

Physiological Experiments.

These I shall refer to shortly.

1. In a rabbit, 457 grammes weight, two drachms of the ordinary fluid extract, given hypodermically, caused weakness, and sprawling

incoördinate motions. Later, inability of the legs to support the body. Head rested on table. Increased pulse and respiration-rate, drowsiness, slowness of reflex, and death.

2. If the fluid extract be exhausted of its alcohol by evaporation, the residue extracted with distilled water, and this be injected, a quantity equivalent to one drachm of the fluid extract has no effect. This extract was minus the alcohol, resin, and most of the alkaloid.

3. In this experiment the fluid extract, simply evaporated to a syrup, so as to get rid of the alcohol, was used. A quantity equivalent to nearly an ounce of the original extract was injected at intervals during two hours. The only effect obtained was some drowsiness.

4. An extract was made from the root-bark. The alcoholic extract was evaporated, and the residue treated with distilled water so as to make a 2·1 extract. There was very little result from injection.

5. 7½ grains (½ gramme) of the resin was rubbed up with water, and injected into the peritoneal cavity. No special morbid sign resulted. Recovery was complete.

6. The fluid extract was evaporated to one-third of the original volume, so that it was practically free from alcohol. Two drachms were injected into the peritoneum of a rabbit (576 grammes). This caused, after about half an hour, sprawling, somnolence, slight resistance when one attempted to put it on its side. Gasping inspiration, insensitiveness of pupils, death. Post-mortem—ventricles in diastole. (ʒij. = ʒvj. ext. fluid.)

7. The same experiment was repeated in a larger rabbit (1102 grammes). Here the equivalent of ℥j. of the extract fluid was injected intraperitoneally. The animal seemed disinclined to move about, and rested its abdomen on the table. There was, later, some drowsiness. Two hours afterwards the equivalent of ℥j. additional was injected. Following this there was a tendency to drag the hinder part of the body and to lie squat on the table. The reflexes were strong and the pupils normal. Next day had quite recovered; ate heartily. Abdomen quite lax; no peritonitis.

8. Aqueous extract of the bark, slowly evaporated to a syrupy consistence, so that ʒj. = 460 grains (30 grammes) of the bark. Injection caused some dragging of the hind legs and drowsiness. Recovered.

In these eight experiments on rabbits we do not obtain any absolutely incontrovertible data to go upon in determining the effects of Viburnum prunifolium. The only effect when the alcohol is eliminated is to cause drowsiness, dragging of the hind limbs, and some general motor weakness. Large quantities of the drug had to be administered.

Experiments on the Frog (Cold-blooded Animal).

9. Rana temporaria: ♏x. of same extract as used in Experiment 8 injected into lymph sac. Results, after half an hour, sluggishness of reflex, muscular weakness, drowsiness, coma, and death.

10. Frog: heart excised with venous sinuses. Placed in ʒj. normal salt solution for five minutes; beating, 21 per minute. On adding ♏vj. of same extract as last, in three parts, at intervals, the heart stops beating in thirty-five minutes.

11. Frogs: two hearts removed, as in last experiment. One kept as control in normal saline solution, the other as in last experiment. The control was still beating after 1½ hour; the other died in five minutes.

12. Heart of frog removed as before and fixed in Williams' apparatus. Defibrinated sheep's blood, mixed with equal volume of saline solution, perfused. Heart-beat 16 per half minute. To 25 c. c. blood was added 2 c. c. of extract = 4 grammes of the bark—neutralized. This was next perfused. Heart-beats slowed to 9 per half minute. Recovered to 15 per half minute on passing the pure blood. Stronger solutions were then passed, and it was found that the heart could be stopped in diastole; but if pure blood were passed recovery took place, though not to the normal rate of beat.

13. A solution giving alkaloidal reactions corresponding to 10 grammes of the bark, neutralized and injected. Died on the third day. Heart in diastole.

14. A solution consisting of the organic acid, after injection, caused some dulling of sensibility and drowsiness, with death on the third day.

15. Frog injected with ♏xij. of a 2·1 aqueous extract (made from an alcoholic extract with acidulated water, and neutralized). *2nd day.*—Reflexes slow, quiescent; requires strong irritation to make it jump. Tends to relapse into drowsy state. *3rd day.*—Dead.

16. Alkaloidal solution similar to that used in Experiment 13, but made in an improved manner. ♏x. injected = ʒxxx. of the bark. Forty-five minutes after, general dulling of sensibility. "Hardly moves, although pinch strongly. Is slow in returning to normal position if placed on its back. Four hours later, reflexes slow and weak. Cannot lift body from table. Incoördinate movements of fore limbs." Difficulty of movement gradually increased. Abdominal reflex was lost, still a slow reflex was present on irritating the skin of the thighs. Died.

17. Same solution used. Sciatic nerves exposed, and on the left side all other structures in the limb ligatured. A greater induced current was required to cause contraction in the unligatured limb than in the other.

In frogs, then, we get more marked effects,—Diminution or loss of reflex; lessening of motor power, both voluntary and involuntary muscle (heart).

There seems to be both in the rabbit and frog a central sedative action.

Blood-pressure experiments showed, in the rabbit, a rapid fall, followed by a slow return to normal, or nearly normal. During depression the primary curves of respiration were less marked, and the heart-beats showed irregularity. Both showed a certain return towards normal.

In the frog, the tracing showed marked effects. While the pure blood passed, the contraction curves were regular in time and volume. As the poisoned blood was substituted, the pulsations gradually became less powerful, and the intervals between them longer, until at last the ventricles stopped in diastole, the auricles occasionally continuing to pulsate for a few seconds.

Recovery took place if pure blood were passed through the heart, and the cycle may be repeated several times.

Effect on Man.

To see if I could demonstrate any effect by pulse tracings, I took ʒvj. of the ordinary fluid extract within thirty minutes, previously taking a tracing. Pulse-rate was slightly lowered, and tracings taken two hours after showed slight softening. To my tactile sense there was also a change in the pulse.

There was slight frontal fulness, not amounting to headache, with very slight discomfort. Other observers have noticed in patients, headaches, disturbances of vision, and dryness of the mouth after administration of this drug. This shows, markedly, the absence of toxicity of viburnum.

Conclusions.

In mammals, warm-blooded animals, owing to the difficulty of giving a large enough dose hypodermically, there is no marked effect, except drowsiness and some lessening of motor power. If the substance be introduced into the heart directly, there is rapid lowering of blood-pressure to about one-half the normal, with slow return to near the normal as the drug is eliminated.

Although too much reliance must not be placed on experimental results in cold-blooded animals as applicable to warm-blooded animals, including man, we may be allowed to take something from these results and use them as *probably* applicable.

Thus, there is *probably* some diminution of reflex irritability, a quieting effect on involuntary muscle, possibly some lowering of blood-pressure, which, even though small, might afford relief in congested conditions. Then, and very important, there is the effect of the valerianic or viburnic acid in neurotic and hysterical conditions.

In the Pharmacopœia there are many drugs capable of bringing about all these desired effects. Why, then, use Viburnum prunifolium? Opium is one of our sheet-anchors, but then there are dangers and inconveniences attending its use. The patient may acquire the opium habit; the constipation caused by it is very troublesome, and it is very toxic.

Viburnum has similar good effects, though not so strong. It is a good form in which to administer valerianic acid. Its effect upon unstriped muscle, though not so strong as that of opium, gives the relief necessary. It has scarcely any effect in causing constipation.

Toxic effects have only been noticed with very considerable doses. Herrick has seen disturbance of vision, dryness of mouth, headaches; and Wilson has observed similar conditions, but these are with doses larger than are usually administered to man.

Preparations.

1. Simple aqueous decoction,—not very pleasant.
2. Tincture, 1 in 5, or as in France 1·1.
3. Fluid extract, made according to the U.S. Dispensatory, with a mixture of alcohol and water. "Extract by percolation the root-bark of Viburnum prunifolium in No. 60 powder, 100 parts, with a mixture of alcohol (90 per cent.) 2, and water 1, by weight. Reserve the first 85, evaporate the remainder to a soft extract. Dissolve this in the reserved portion, and add enough menstruum to measure 100. Dose ʒss.–ʒij."
4. Inspissated extract. And I would recommend the following:—
5. Capsules. These are made by evaporating ʒj. of a 1·1 fluid extract to ♏x. at low temperature or in vacuo, and enclosing in a gelatine capsule. These are readily taken, as the taste and unpleasant smell are masked. If kept for a little time the gelatine becomes dimpled, by absorption of water from the extract by the inner surface of the capsule.

They were made for me by Mr D. Middleton, Edinburgh.

This research was carried out in the Laboratory of the Royal College of Physicians, Edinburgh.

BIBLIOGRAPHY.

ABBOT.—*London Med. Recorder*, 1879, p. 41.
ALLEN, HERMAN VAN.—*Amer. Journ. Pharm.*, 1880, p. 443.
AUVARD.—*Gaz. hebdomad. de méd. et de Chimie*, Aug. 1887, p. 547.
BALDY.—*Amer. Text-book of Gynecology*, 1894.
BARNES.—*Obstetrics, Med. and Surg.*, ii. p. 231.
BEVILL.—*Amer. Therap. Gaz.*, 1886, p. 756.
BLACKERBY, J. M.—*Therap. Gaz.*, Detroit, 1882, iii. p. 321.
BOAL, R.—*Peoria Med. Monthly*, 1881-2, ii. p. 206.

Brown, B. C.—*Maryland Med. Journ.*, Feb. 1878.
Bullard.—*New Preparations* (Amer.), 1879, p. 194.
Campbell, M'Fie.—*Brit. Med. Journ.*, 1886, i. pp. 391, 740.
Carson.—*Amer. Therap. Gaz.*, 1882, p. 196.
Chadwick.—*Lond. Med. Record*, 1879, p. 41.
Coleman, W. L.—*Therap. Gaz.*, Detroit, 1881, ii. p. 249.
Coggeshall.—*Amer. Therap. Gaz.*, 1885, p. 625.
Cullen, R. C.—*Amer. Therap. Gaz.*, 1880, p. 71.
Curtis.—*Lond. Med. Rec.*, 1879, p. 41.
Dictionnaire Encyclop. des Sciences Méd., iv. p. 709.
Dictionnaire Universelle, p. 31 (Art. "Viorne").
Dinkins, W. L.—*Virgin. Med. Monthly*, 1878, p. 294.
East, L. A.—*Louisville Med. News*, 1879.
Everett, A. S.—*Amer. Therap. Gaz.*, 1880, p. 95.
Farriols y Garrido.—*Med. Pract.*, Madrid, 1888-9, p. 156.
George, Conrad.—*Amer. Therap. Gaz.*, 1884, p. 353.
Goss, J.—*New Preparations* (Amer.), 1878, p. 61.
Glazener, G. S.—*So. Med. Rec.*, Atlanta, 1879, ix. p. 125.
Graham, J.—*Brit. Med. Journ.*, 1885, i. p. 593.
Green, W. E.—*Brit. Med. Journ.*, 1886, i. p. 543.
Griffin.—*Med. Age*, 1886, p. 205.
Herr.—*Lancet*, 1885, ii. p. 36.
Herrick, O. E.—*Obstet. Gaz.*, Cincinn., 1882, v. p. 511.
Hinton, R. L.—*Therap. Gaz.*, Philad., 1889, p. 385.
Houston.—*Amer. Therap. Gaz.*, 1882, p. 194.
Huchard.—*Dict. Encycl. des Sciences Méd.*, iii. p. 709.
Hughes, J. B.—*No. Carol. Med. Journ.*, 1879, p. 367.
Jenks.—*Trans. Amer. Gynec. Soc.*, Boston, 1876, i. p. 127.
Joseph.—*Deutsch. Med. Zeit.*, Berlin, 1892, xiii.
Joseph.—*Wien. Med. Wochen.*, 1892, xlii.
Lawrence, S. S.—*New Prep.* (Amer.), 1887, p. 21.
Larousse.—*Dict. Univers.* (Art. "Viorne").
Lemont, R. J.—*Amer. Therap. Gaz.*, 1880, p. 130.
L'voff, Ivan.—*Lancet*, 1886, ii. p. 888.
L'voff, Ivan.—*Lond. Med. Rec.*, 1887, p. 61.
Lyman.—*Lond. Med. Rec.*, 1879, p. 41.
Martindale and Westcott.—*Extra Pharmacop.*, p. 389, 8th ed
M'Koy.—*New Prepar.* (U.S.A.), 1879, p. 267.
Metcalf.—*Amer. Therap. Gaz.*, 1882, p. 409.
Millbourne, J. K.—*Amer. Therap. Gaz.*, 1881, p. 209.
Monclar.—*Thesis on Vib. prunif.*, Paris, 1887.
Napier, Leith-.—*Brit. Med. Journ.*, 1886, i. p. 489.
Nisbet, D. B.—*So. Med. Rec.*, Atlanta, 1879, ix. p. 47.
Owen.—*Brit. Med. Journ.*, 1890, p. 86.
Payne, R. L.—*Trans. Med. Soc. No. Carol.*, 1888, xxxv. p. 151; *Med. News*, Philad., 1892, lx. p. 371.
Phares.—*Atlanta Med. and Surg. Journ.*, 1866, vii. p. 408.
Real Encycl. der Gesammten Pharmac., Wien u. Leipz., 1891.

Rees, D. B.—*Amer. Therap. Gaz.*, 1881, p. 411.
Roe.—*Amer. Therap. Gaz.*, 1883, p. 9.
Roberts, C. H.—*Brit. Med. Journ.*, 1887, ii. p. 1153.
Rockwell, A. S.—*Lond. Med. Rec.*, 1879, p. 402.
Schatz.—*Lancet*, 1888, ii. p. 133.
Smythe, A. G.—*So. Med. Rec.*, Atlanta, 1882, xii. p. 418.
Squire.—*Compan. to Brit. Pharmac.*, 1890, p. 481.
Wilcox, R. W.—*New York Med. Journ.*, 1890, Dec. 13.
Wilson, J. H.—*Brit. Med. Journ.*, 1885, i. p. 987; 1886, i. p. 641.

IV.—THE CONSTITUTION AND USE OF INFANTS' FOODS.

By W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P. Ed., F.R.S.E.

(*Read before the Medico-Chirurgical Society of Edinburgh, 3rd June* 1896).

Abstract.

General Conclusions regarding Infants' Foods.

We gather from analyses of the principal varieties of infants' foods the following:—

1. Most of these consist of wheaten flour mixed with malt or extract of malt. The latter is supposed to act on the starch of the flour during the process of cooking, and by the diastase which it contains to convert the starch into maltose and glucose.

I have shown, however, that in several of these varieties, if prepared according to the directions accompanying each, only a very small conversion of starch occurs. A temperature of 140°-150° F. is most suitable for the action of diastase; while if carried to 212° F. the ferment is killed or its action arrested. Now, several of these foods are prepared by adding boiling milk or water, and then boiling for from five to ten minutes. Such treatment effectually prevents the starch from undergoing any conversion, or soon brings to an end any that is going on already. I have shown that if some of these foods be prepared by adding warm water, and be then kept warm for half an hour, the temperature not being allowed to rise much above 150° F., part of the starch undergoes conversion, and we then find dextrin, maltose, and glucose, with or without unchanged starch, depending on the time allowed and on the strength of the ferment.

Some of the foods composed of flour and malt are directed to be prepared thus, and with these no fault can be found. Those, however, which are directed to be boiled, I have no hesitation in saying, are quite unsuitable as foods for young infants. Not that the food is in itself bad, but owing to the mode of preparation which renders it so. If properly cooked, some of these would make fairly good foods.

Those containing ground malt should always be used in preference to those which contain the extract, as the former is much more active in its converting power.

It is to the mixtures of malt and flour that I look to the greatest improvement in the feeding of infants. By varying the time during which such mixtures are heated, we may convert the starch to any degree we desire, and so make it suitable for the child at different ages or according to its condition of health. We may either wholly convert the starch by prolonged heating, so making it suitable as a food in addition to milk for young infants; or the conversion may be only partial, leaving still soluble starch, dextrins, and maltose. As the child grows older the amount of conversion is proportionally lessened, till when it has arrived at a suitable age or condition unchanged starch may be given alone.

In a few of these foods cane sugar is also added; but this is an addition to infants' or invalids' food which I have elsewhere sufficiently condemned.

2. Instead of malt, some contain the pancreatic ferments. These act both on the starch and on the milk with which the foods are prepared, and so both are predigested.

Such foods must be most valuable in conditions of great debility, inanition, or exhaustion in infants or invalids. In an ordinary food for children, however, we do not wish to digest the milk, which is the natural food of the child, and which usually can be digested well enough. Proteids are generally well digested by infants, and we take advantage of this to feed them on meat infusions when there is great debility. As a general rule, therefore, we do not desire to predigest the proteids of milk, but only the carbohydrate element which the infant cannot properly, or only partially, digest. It has been shown that kittens fed on fully predigested milk did not, for a time, thrive so well when this was replaced by only partially predigested milk as their brothers and sisters who were fed on ordinary milk. The use of predigested foods lessens the activity of the glands which ought to secrete the digestive fluids. We ought not, therefore, to give artificially digested food for a longer time than is absolutely necessary.

3. In some of the foods the starch has been converted previously through the action of the diastase of malt. In these we find no unchanged starch, or at most mere traces of it; erythrodextrins and achroodextrins are found in varying amount; while maltose and glucose occur usually in large amount.

Nearly all of these are made from flour, and so contain, besides, the vegetable albumins and mineral matters. In some foods an alkaline carbonate is added in order to neutralize the acidity of ordinary cow's milk.

Such foods as these are very easily absorbed. The starch is almost wholly changed into easily absorbable dextrins and glucose, and so they require little or no digestion. This is manifestly of the greatest importance to the child, in whom the power of digesting carbohydrates is at the minimum.

4. Combinations of dextrins and starch are often met with, and are highly vaunted as valuable foods for infants. Such foods consist simply of flour which has been subjected to a high temperature, and has thus been baked. The starch during this heating becomes changed into soluble dextrins. If the flour has been carefully heated, and for a long enough time, the starch becomes wholly dextrinized. In the usual foods, however, such treatment has rarely been carried sufficiently far; thus only a part, and usually a small part, of the starch has undergone conversion even into the early formed or low dextrins. They contain usually much unchanged starch, along with the albuminous constituents and salts of the grain. Domestically this is known as the "flour-ball," and is prepared by boiling flour in a cloth for about twenty-four hours. It then forms a hard ball, which, after the translucent outside skin has been pared off, consists of a dense white substance, made up of dextrinized starch. This is then ground down and mixed with milk for the infant's use. Used in this manner it forms an easily assimilated carbohydrate, and, acting as a mechanical diluent, helps to prevent the milk from coagulating in large or firm clots in the stomach.

If these dextrinized foods are thoroughly well prepared they form valuable additions to the milk. If imperfectly dextrinized, however, the large amount of unchanged starch which is also given forms a great drawback to their use as safe articles of diet.

5. Many preparations sold as food for infants consist simply of flour or unchanged starchy matter.

Such foods ought never to be given, as only a small part can be digested by the infant. We find that many of these, besides, are very coarsely prepared, and show, when examined by the microscope, the presence of husks, spiculæ, etc., which must prove most irritating to the delicate intestinal mucous membrane, and which form a sufficient cause in many cases for the diarrhœa which ensues after such food is administered.

Owing to the relatively small number of glands in the intestinal tract in the young child, and to the immaturity of those which are present, the infant is unable to assimilate carbohydrates which require extensive change.

As the child grows older greater liberties may be taken with his digestion; but at an early period of his life it is culpable ignorance to tamper with the delicate machinery of digestion by giving any or the first food which may present itself to the parents or to the seller.

It seems to me that the general and unrestricted sale of such preparations as food for infants ought to be prohibited; or that, at least, they should only be sold by qualified chemists who would first inquire as to the age and condition of the child, and who would thus know whether the food were suitable or not. A still safer plan would be that none of these foods should be supplied unless prescribed by a medical practitioner,—in fact, dispensed in the usual manner in which drugs are sold. In order to do this, however, the method of manufacture and composition of each food, both before and after being cooked, would require to be made public and printed on each packet.

It is the wholesale vending, nay, the intrusion, of such foods on people that renders their use so general. It is a fact that so soon as a birth is advertised in the newspapers, many of the manufacturers of these foods send samples of their preparations to the parents, and, of course, each is accompanied by its own laudatory literature. The parents, knowing little regarding the proper feeding of their child, select one which they think is best, and so, unguided by experience and ignorant of physiological processes, they usually choose that which is most highly vaunted or is accompanied by portraits of the fattest babies reared on such food.

It is on account of the incalculable harm which is thus done—unwittingly in many cases—to the infantile population, that I would put the sale of such foods under a restriction. For this purpose a special clause might be introduced into the "Sale of Foods and Drugs Act," so as to make the indiscriminate sale of infants' foods penal.

Almost all the forms of infants' foods are directed to be made with milk or with a mixture of milk and water, except those which already contain desiccated milk.

In those which contain malt the starch becomes converted in large part during the preparation of the food. Now it has been shown that if malt be added to milk, and if this mixture be kept at 100° F. for some time, the casein of the milk undergoes such a change that it becomes uncoagulable by acids. I have verified this, and find that when acetic acid is added to milk which has been heated with malt no curdling takes place. This fact must be of great importance as regards the digestion of milk, for one great cause of indigestion is the formation of large clots of milk in the stomach. In foods containing malt the milk is also acted on during the process of cooking, and so rendered uncoagulable by the acid of the stomach. Might this not prove serviceable in the treatment of some forms of indigestion following the use of cow's milk? Instead of mixing the milk with any starchy food, would it not be preferable to keep it in contact with a solution of malt for some time so as to prevent the formation of dense coagula in the stomach?

Such foods containing malt, when the cooking causes an almost complete conversion of starch, or those which are already entirely converted, when added to diluted cow's milk, and with a little cream added (for nearly all these foods are deficient in fat, and the dilution of the milk reduces the percentage of fat much too far), make, in my opinion, the most suitable substitute for mother's milk, or for infants with whom ordinary cow's milk does not agree, or who are not thriving on it.

Not only are these foods good as adjuvants to milk, but they are sometimes the only food which the child can digest. After once that fermentative changes have taken place in the gastric and intestinal contents, with consequent vomiting and diarrhœa, the bacteria which have caused these remain, and cause milk to become acid as soon almost as it has been taken. Under such circumstances the use of milk must be stopped, and we have then recourse to such foods as the above, along with infusions of meat, as veal or chicken broth.

At a later date also they are of great value, when we are beginning to add other food materials to the milk. What better can we begin with than some of the easily digested carbohydrates?

It would be improper in me to specify by name the particular foods which I would recommend in feeding infants of various ages. After what I have said, however, there can be little difficulty in chosing the particular food for the particular age and condition of the child. I have shown what I consider to be the most easily assimilated forms of the carbohydrate group, and from the analyses of the carbohydrate constituents of the most widely-known foods for infants now on the market which I have given, it will be easy to select those which would form desirable additions to, or substitutes for, a purely milk diet.

What I have stated regarding the kind of carbohydrate food which may be given to the infant applies, and in some cases with even greater force, to the dyspeptic and invalid, or during senescence, when the digestive organs are feeble and assimilation is less active than formerly.

In such diseases as chronic gastric catarrh, dilatation of stomach with concomitant atrophy of the gastric glands, acid dyspepsia, cancer of stomach, congestion of the gastric and intestinal mucous membrane from heart or lung disease, I would forbid the use of ordinary farinaceous food, unless in very small amount; while I would advocate the use of partially or completely converted starch. In ascites or dropsy such food would act most beneficially and even therapeutically, for glucose and even dextrins form powerful diuretics, and act without raising the blood pressure.

In many febrile conditions the amylolytic action of the salivary and pancreatic secretions is greatly lessened, and only harm can be done by the administration of ordinary starchy foods; whereas if predigested they act as valuable and easily assimilated foods. Again, in those cases where there is great deficiency of hydrochloric acid in the gastric juice, as, for example, in anæmia, simple and pernicious, cancer of the stomach, etc., where proteid matters are not digested well, starchy food ought to bulk largely in the diet, as the amylolytic action of the saliva continues for long in the stomach, there being little or no acidity to cause its cessation.

The carbohydrates, when either partially, or specially when wholly converted, form easily assimilated articles of diet, and give rise to no inconvenience, unless when, like any other food, they are taken in excess. They are quickly absorbed, and thus form a most valuable addition to our fat-producing or energy-saving foods.

It is by attending to such points as I have drawn attention to in managing the dietary of infants and invalids, along with an improved hygiene, that we may in the future with confidence expect a greatly diminished rate in infantile mortality, and a much improved condition in the general health amongst the new members of our population.

V.—CRIMINAL ABORTION IN THE PUNJAB.

By Surg.-Capt. Charles H. Bedford, D.Sc., M.D., I.M.S , formerly Professor of Chemistry and Toxicology, Lahore Medical College (Punjab University), and Chemical Examiner to the Punjab Government.

Communicated by Dr J. W. Ballantyne.

(*Read before the Edinburgh Obstetrical Society, 13th May* 1896.)

The cases which form the basis of the following paper came under my official notice as Chemical Examiner for the Punjab from November 1893 to November 1894, *i.e.*, during the time I held that office. The facts detailed are derived—(1) from notes made by me on the official documents forwarded by the local medical officers and subordinates, as well as by the police, the main source being from the post-mortem and symptomatological reports of the medical men who conducted the treatment and post-mortem inspection of the cases; and (2) the macroscopic, microscopic, and chemical conditions noted by me in the articles sent to me for examination and analysis.

Police Procedure in Abortion Cases.

When a case of suspected criminal abortion occurring in the Punjab comes to the knowledge of the police, they request the Government medical officer (civil surgeon) of the town or district to examine the patient; and, if death has resulted, to submit to them a report on the post-mortem conditions present, and an opinion as to the cause of death. If the civil surgeon, in the course of the inquiry, meets with appearances suspicious of abortion, he arranges with the police to forward to the chemical examiner of the province such of the viscera as it may be deemed necessary to send, for the purpose of having them examined and analysed for poisonous substances which may be present in them. Any suspicious drugs or agents by which abortion might have been procured are also sent for examination along with the viscera. There is a routine way of securely sealing the packages containing the viscera, and the steps to be taken in forwarding articles for examination to the chemical examiner are fully detailed in the printed orders passed by the Government of the province in question.

Chemical Examiner's Procedure.

When the chemical examiner receives articles for examination in such cases, his first step is to carefully read through the documentary evidence in connexion with the case, in order that, if possible, directive information may be obtained as to the abortifacient to be searched for in the case under reference. The package is then carefully examined externally for any signs which may be present to indicate that it has been tampered with in transit, and the impressions on each seal on the package are compared with the sample seal sent separately by letter-post, along with the documents in connexion with the case. This concluded, the chemico-microscopical examination is then conducted, and the results are stated in an official report which is despatched to the forwarding officer—medical or police. The chemical examiner does not appear in Court to be cross-examined on his report. The interpretation to the Court of the facts of the report is the duty of the *local medical officer.*

The information to be derived from the documents forwarded to the chemical examiner in connexion with many cases is frequently of too vague a character to be of any assistance to him in directing his search for the particular abortifacient used. And when, as not unfrequently happens in a fatal case, the forwarding officer omits to send the uterus and upper portion of the vagina, the search for abortifacients is often futile.

General Remarks on the Abortion Cases referred.

Twenty-six cases in all were referred to me during the twelve months under consideration, and in *all* of these (except two references in which suspected drugs alone were sent) death had occurred. It is very probable that these 24 cases only represent a very small fraction of the fatal cases of criminal abortion occurring in the Punjab, and an infinitely smaller proportion of the non-fatal cases. Of course, the same remark might be made with regard to nearly every community, but it is safe to say that, *relatively*, the statement just made applies with greater force to India than to most civilised countries. The average Indian native woman is very poor and too ignorant to adopt "preventive checks," and she falls back the more readily on abortion as an easier way (to her) out of her troubles. It is, however, not so much among the married as among the illegitimately pregnant that abortion is practised. Widows, debarred by the social custom of the country from remarrying and who find themselves pregnant, are the principal offenders, so far as my experience goes. The reason which, to my mind, best accounts for the uniform fatality of all cases which have been referred to me is that, in outlying districts and in densely-crowded cities, only fatal cases *come to police notice.* A woman procures abortion; she suffers subsequently from pyrexia from sepsis, she recovers, and says that she had an attack of "fever"—understood as malarial fever by the neighbours. Or she dies, and her death may be attributed to the same cause; and, in the case of a Hindu, on the same day her body is partially burnt and thrown into the nearest large river (when the relatives can afford it the body is wholly incinerated). Unless a complaint has been directly lodged with the police (and this few care to do, for reasons known to residents in India), the "corpus delicti" is in ashes, or miles down the river, or undergoing the process of digestion in the alimentary canals of sundry fish or alligators, before any legal steps can be taken in the matter. In the case of Muhammadans the body would be disinterred. Many of the cases referred have come to the notice of the police *viâ* common rumour,—probably started while the case was yet alive,—and steps have been taken to prevent the burial or burning of the body without its having first undergone the "ordeal by autopsy."

Comparison with Numbers received in two previous years.

Twenty-six cases were referred during the twelve months I am dealing with. For the preceding year 17 cases were sent up for examination to the Chemical Examiner for the Punjab, and in the year before that only 7, so that the increase is a substantial one, and, I think, goes to show better police surveillance, and not an actual increase in crime.

General Means Employed.

In India the instrument which is used locally to procure abortion is generally medicated with some irritant chemical substance. The safety of simplicity is not known or appreciated. If it *were* known that the detachment of the membranes adjacent to the os by finger or bougie was all that was necessary, the knowledge would, in the vast majority of cases, be comparatively useless in the hands of people ignorant of the anatomy of the parts, of the best means of dilating the cervix for the purpose of introducing into the uterus the finger or bougie, and of the manipulative dexterity requisite to the accomplishment of the procedure with the minimum of danger to the patient. We must remember that in the Punjab knowledge of the means of procuring abortion rests in the main with native nurses (dhais), with native "midwives," or with male native quacks, and these all share the common attribute of intense ignorance, and are blinded, further, by rigid conservatism in favour of methods which have been, no doubt, in use in India for hundreds of years.

The production of abortion by the administration of substances by the stomach, which may induce abortion by acting as drastic purgatives or by causing profound constitutional disturbances, is less common than by local means, the preference being no doubt based on observation of the uncertainty of general as compared with local abortifacients.

Legal Aspects of Criminal Abortion in India.

India has the great advantage of a Penal Code, founded, no doubt, on the celebrated "Code Napoléon," and sections 312, 313, and 314 deal with this crime.

"312. Whoever voluntarily causes a woman with child to miscarry shall, if such miscarriage be not caused in good faith for the purpose of saving the life of the woman, be punished with imprisonment of either description[1] for a term which may extend to three years, or with fine, or with both; and if the woman be quick with child, shall be punished with imprisonment of either description for a term which may extend to seven years, and shall also be liable to a fine.

"*Explanation.*—A woman who causes herself to miscarry is within the meaning of this section.

"313. Whoever commits the offence defined in the last preceding section without the consent of the woman, whether the woman is quick with child or not, shall be punished with transportation for life, or with imprisonment of either description, which may extend to ten years, and shall also be liable to fine.

"314. Whoever, with intent to cause the miscarriage of a woman with child, does any act which causes the death of such woman, shall be punished with imprisonment of either description, for a term which may extend to ten years, and shall also be liable to fine; and if the act is done without the consent of the woman, shall be punished either with transportation for life or with the punishment abovementioned.

"*Explanation.*—It is not essential to this offence that the offender shall know that the act is likely to cause death."

If the attempt be made by the administration of an "unwholesome drug or other thing," the case may be dealt with under section 328, which deals with attempts to poison. In England criminal abortion is punishable under sects. 58 and 59 of 24 and 25 Vict. c. 100, as amended by 27 and 28 Vict. c. 47. These sections do not, like the Indian ones, infer that want of the woman's consent aggravates the offence; there is, besides, no question of quickening raised; moreover, it is only when a woman is accused of procuring abortion on herself that the question of pregnancy arises; and, lastly, if the child or woman dies as the result of the attempt, the case is dealt with as one of ordinary homicide. It will thus be seen that the Indian code takes, as compared with the English statute-book, a fuller view of the crime in question.

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[1] *I.e.*, "ordinary," or "rigorous" (*i.e.*, hard labour).

Division of the Subject.

Accidental or justifiable abortion forms no part of our subject; the following division of the subject of criminal abortion[1] (which alone engages our attention in this paper) will be observed. From the point of view of the *civil surgeon* who attends the case or performs the autopsy, the examination consists of—(1) That of the alleged uterine products; (2) the symptoms of the case during life; (3) the cause of the abortion—natural or criminal; (4) the appearances at the autopsy of (*a*) the body generally and viscera other than those of the reproductive system, and (*b*) of the reproductive organs—internal and external. The question of the employment of general or local means will also have to be considered by him.

The chemical examiner is concerned alone with the examination and analysis of substances found in the genital tract or of agents alleged to have been used to procure abortion by general or local action.

General Means[2] (apart from shocks by blow or fall, abdominal bandaging, etc).—Emetics, purgatives, ecbolics, irritants, emmenagogues, and substances coming under none of these heads, may be employed in India for the purpose of inducing abortion.

Local Means.—In India generally consist in the introduction into the os of some irritant twig or bougie (medicated); or in endeavours to procure the end in view by the application to the cervix of irritant substances in the form of a paste by the finger, or on cotton wool, etc. Death may be caused—(*a*) By the abortion being followed by one or other of the usual causes of death in ordinary miscarriage; or (*b*) by peritonitis directly induced by mechanical injury to, or even perforation of, the womb.

The examination of the facts in my possession with regard to the 26 cases under consideration will best be conducted under the following headings:—(*a*) Abortifacient substances employed; (*b*) Ages of deceased females; (*c*) Condition (married, single, or widowed); (*d*) Self-induced, or, if not, by whom?; (*e*) Age of pregnancy; (*f*) Attempt by local or general means; (*g*) Cause of death; (*h*) Death, but not abortion, produced; (*i*) Abortion produced; (*k*) Signs of mechanical injury to reproductive organs; (*l*) Distribution of cases; (*m*) Post-mortem and other details of cases not included under other headings.

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[1] The term "miscarriage" covers, in law, both "abortion" and "premature labour"—the latter term referring to the abortion of a viable child.

[2] Venesection as a cause of abortion has the authority of Hippocrates, but it is now an exploded idea. Bleeding to *stop* impending abortion used to be commonly practised.

(*a*.) *Abortifacient Substances employed.*—Out of the total number of 26 cases:—Portions of twigs or battis,[1] four cases; nutmeg detected, four cases; opium only detected in two cases; arsenic detected in four cases; crude carbonate of sodium ("sajji"), black pepper, mercury, croton and aloes, alum, saffron, each once; no poisonous or irritant substance detected, three (in two of these the uterus was not forwarded to me); suspected drugs, two.

Battis (pronounced "buttee.") The longest of the specimens shown is composed of a stem dressed (just as a uterine sound would be) with cotton wool, and the whole was then—in this case—smeared over with a paste of pounded nutmeg. (This substance probably owes its irritant properties, such as they are, to a solid glyceride of myristic acid [$C_{14}H_{28}O_2$], which is a constituent of its concrete oil; and to the terpene and myristicol [an oxygenated oil], which chiefly go to form its volatile oil.) But, of course, it is an unnecessary refinement (!) to use nutmeg paste at all. The mechanical irritation of the piece of stick (which, in the attempts at introduction through the os, will also probably have ruptured the membranes) being quite sufficient for the purpose in view. The head of another "batti" exhibited is medicated, in the same way as the one just shown, but with arsenic instead of nutmeg.

Other substances used on the battis are pulped jequirity, vern. name, "ratti" (Abrus precatorius) seeds; "madâr" (Calotropis procera or gigantea) juice; capsicum seeds, pounded to a paste; croton seeds, often mixed with mineral irritants, such as arsenious acid, cupric sulphate; impure carbonate of potash (as well as impure sodium carbonate, already referred to); quicklime. These substances may be used also to smear the cotton-wool pledgets referred to in this paper. These pledgets are pushed up the vagina with the finger to the os, and left there. This is a safer means than the "batti" for the woman, but not so certain of producing miscarriage.

"Battis" are occasionally prepared as follows:—The end of the twig is dressed with cotton wool, dipped into spirits of wine or coarse country spirit, and then smeared with a mixture of aloes, lime, impure sod. carb., and nutmeg. More cotton wool is applied over this, and then the "batti" is again treated with spirit and the above-mentioned mixture of drugs. It is then passed into the cervical canal, left a few minutes, withdrawn, and more cotton wool is applied; this is recharged with the before-mentioned irritant substances, and is passed again into the os. This procedure is repeated until the os has been dilated sufficiently to allow two fingers to pass (the dilatation being effected mainly by the mechanical dilatation of the gradually thickened batti-end, though when uterine contractions set in there is added a certain amount of physiological dilatation), and then the membranes are ruptured. Friction to the abdomen is now applied, and abortion follows. This method requires some degree of skill to apply, and I have not met with an example of it, although it is certainly occasionally employed in the Punjab.

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[1] "Batti" is the Hindustani (Urda) for a candle (compare French *bougie*, used in a similar connexion).

Another modification employed is to pass three or four "battis," one by one—leaving each preceding one in the cervical canal—in order to dilate the os sufficiently for a finger to be passed, in order to rupture the membranes.

Another plan which has been recorded is to fix a piece of arsenious acid to the end of a twig, which is then passed up to the os, and left there. Of course, the action of this is caustic; very severe local reaction follows, but abortion is uncertain. It is certainly a very exceptional method of attempting to procure abortion. The batti medicated with arsenic which is shown to-night exemplifies this use of arsenic in a milder form.

Marking-nut juice has been used, applied on a cotton-wool pledget to the os. It is an uncertain abortifacient measure, as is also the employment of the latex of various euphorbias. *Red lead* (minium, Pb_3O_4) has been used, often along with yellow, white, or red arsenic, as a paste for medicating "battis."

The *stems* of the battis are generally twigs of oleanders (Nerium odorum and Cerbera thevetia), euphorbias (E. Tirucalli especially), and of Lal Chitra (Plumbago rosea and P. zeylanica), and, lastly, of Chiretta.

I show you a specimen of Lal Chitra (Plumbago rosea, N.O. Plumbagineæ), which is frequently used, in the form of a paste made from the pounded roots, for medicating batti-heads; as also for introduction as a twig into the uterus. Internally, this substance acts as a narcotico-irritant poison, if taken in a sufficiently large quantity. Dr Chevers, late of Calcutta, mentions at p. 252 of his classical work on *Indian Medical Jurisprudence*, two cases of poisoning by means of Lal Chitra—one with murderous intent. Applied to the skin, it acts as a violent irritant and vesicant.

Another vegetable abortifacient used in India is the *Marking nut* (Semicarpus anacardium, N.O. Anacardiaceæ; vern. name, "Bhilawa"), of which specimens are now exhibited. The juice from the bruised nuts is highly irritant, blistering the parts of the body to which it is applied. Besides its interest as an abortifacient, it is noteworthy that it is frequently employed in aiding the fabrication of false charges of assault, as, when rubbed on the skin, the diluted juice produces somewhat the appearances of bruising. It can generally be distinguished from a bruise by the black blisters which it raises, and, in many cases, by causing a papular or eczematous eruption. Given by the mouth—as it is by native empirics for remedial purposes—its contact-effects are much feebler than if externally applied. The juice has been used to cause disfigurement by being thrown in the face, just as in the case of the familiar crime of vitriol-throwing. Chevers also mentions its use by malingerers to produce skin-eruptions and conjunctivitis. Dr Gray of Bombay[1] met with a case in which a man placed three marking nuts in his wife's vagina, as punishment for adultery.

Nerium odorum (N.O. Apocynaceæ; vern. name, "Kaner"—pron. Cun-air), is an oleander, acting powerfully as a spinal and cardiac poison. It is only occasionally employed for poisoning, and very rarely as an abortifacient. I show some leaves and twigs of it, all parts of the plant being poisonous.

Lastly, *Calotropis gigantea* (N.O. Asclepiadeæ) is a well-known abortifacient among natives. It is the juice known as "ak" (pron. uck), or madar (pron. mud âhr), and got by exudation from the leaves and stalks, which is used. It is employed medicinally by natives and domestically as a depilatory. As an instrument for effecting crime, its two principal uses are in infanticide and abortion: it has been used for suicidal purposes, being taken internally. As an abortifacient, it is given either by the mouth or as a topical application, and often in both ways. The specimen shown is the root-bark.

(*b.*) *Ages of the deceased Females.*—16 years of age, one; 18, two; 20, one; 25, three.

Among Muhammadans abortion appears to be somewhat less common than among Hindus (no doubt on account of the prohibition of Hindu widows from remarrying).[2]

(*c.*) *Condition* (*married, single, or widowed*).—In only five cases this information is given: three of these were widows; one was married, and was stated to have been pregnant by a man other than her husband; and one was single. In the remaining cases no indications on the subject are given.

(*d.*) *Self-induced, or, if not, by whom?*—In seven cases (one of which was probably suicidal, abortion being secondarily induced) abortion was self-induced. In 13 cases there was very strong *presumptive* evidence that the abortion was not self-induced. In four cases it was *certainly* not self-induced (in one it was procured by the man by whom deceased was pregnant, and in three by other women—in one case at the instigation of the paramour of the deceased). In one case it was uncertain whether the abortion was self-induced or not.

(*e.*) *Age of Pregnancy.*—Out of 24 cases,[3] four occurred at the *third* month, or a percentage of 16·6; eight at the *fourth* month, or 33·3 per cent.; five at the *fifth* month, or 20 per cent.; and one at the *sixth* month, or 4 per cent. In six cases no data were given by which the age of the pregnancy could be determined by me. In 12 of these cases the estimation has been made by me from the uterine measurements noted in the post-mortem reports forwarded in connexion with the cases. As will be seen, the fourth month, then the fifth, and then the third, would (from these figures—not, it is to be noted, a very broad basis for deductions) appear to be, in order, the periods at which abortion is most frequently attempted.

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[1] Lyon's *Medical Jurisprudence for India*, 1889, p. 377.

[2] In the remaining cases the ages are not recorded in the documents forwarded to me.

[3] No references. There were, it will be remembered, two more references in which drugs, etc., alone, and no viscera or post-mortem reports, were received.

(*f.*) *Attempt by Local or General Means.*—(i.) *Local:* in 13 instances. In two of these by regular "battis"; in one, a portion of twig was found penetrating the uterus at its junction with the cervix; in another, the uterine wall had been penetrated by some hard stem, and the cotton wool which had dressed the stem was found—soaked in crude sod. carb. solution—in the uterine wound; again, a piece of twig was found in the cavity of the womb. In two cases pledgets medicated with arsenic were found in the cervix or uterine cavity. Nutmeg paste was detected on the cervix in another case. In another the wool pledget was medicated with saffron, and in another a cotton-wool pledget found in the vagina was found to have been smeared with a paste of pounded croton seeds and alum. (ii.) *General:* In 11 cases. In three of these the particular substance used was not separated, but the symptoms and post-mortem signs show that the agent employed had been administered by the mouth and not topically.

The general or constitutional measures adopted were as follows:—(i.) Mercury was detected in the stomach contents and liver of one case; (ii.) Arsenic was separated from the stomach and contents, liver and kidneys in another; (iii.) Powdered black pepper was found in large amounts in the stomach of a third case (this shows either an attempt to procure abortion or that the pepper was taken for gastro-intestinal symptoms, as it often is by natives); (iv.) Aconite and opium were the cause of death in another case of attempted abortion (not suicidal); (v.) Nutmeg[1] was found in the stomach and contents, and in the fæces (it was proved to have been taken to procure abortion, though its action as an abortifacient when taken by the mouth is very improbable); (vi.) Opium caused death in this case, being detected in lethal amounts in the stomach and contents and liver,—the woman probably committed suicide by opium, and did not take the opium with the intent to procure abortion (which is just as well (!), for disappointment would have been the result had it been used for the latter purpose); (vii.) Another case of opium poisoning (suicidal) in a woman illegitimately pregnant.

In addition to the poisons used either generally or locally as arbortifacients which have been already referred to, and of which specimens were exhibited, the following are occasionally employed for the purpose in India:—*Purgatives:* Gamboge, aloes, croton seeds, calomel, etc. These are, of course, all uncertain in their abortifacient effects. *Irritants, stimulants, and astringents:* Garlic, cardamums, asafœtida, alum, and also a decoction of Luffa echinata, which causes great nausea, vomiting, and dilatation of the os uteri; also arsenic, saffron, "sañ" (Crotalaria juncea),—the action of the two latter being more than open to doubt. Auto-suggestion would best explain *their* action as abortives.

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[1] It is also used by natives as a carminative and stimulant. But an ignorant native woman desirous of procuring abortion is not given to profound ratiocination as to the pharmacological effects of any drug proposed to her as an abortive.

It should be added that the action of such substances as calomel, aloes, croton, and gamboge is generally enhanced by the native practice of vigorously shampooing the abdomen after the administration of these drugs for a criminal purpose, the direct stimulation of the uterus by friction coming to the aid of the reflex irritation produced by the cathartic or drastic administration.

(*g.*) *Cause of Death.*—The cause is generally not stated in the documents, but it may in many instances be safely inferred from the description of the symptoms and post-mortem appearances:—Septicæmia, seven; peritonitis, three—in one case from perforation of uterus, and in another a "batti" was found in the uterine cavity; both septicæmia and peritonitis, one; drug poisoning, three—two of opium and one a compound case of poisoning by aconite and opium. In eight the cause of death could not be determined with certainty,—crotalaria juncea being the alleged cause in one case, and in two cases there were no data whatever supplied.

(*h.*) *Death, but not Abortion, produced.*—In only *two* instances did this occur. The first was a case in which "Lal Chitra" was detected on "battis" found in the uterine cavity close to the os internum. A female fœtus at the sixth month was found in the uterus. The case will be fully detailed later. The second case was one in which the woman herself made the attempt to produce miscarriage. She was four months pregnant, and she took mercury by the mouth in fatal quantity, dying after exhibiting typical symptoms of irritant poisoning. The fœtus was expelled after death by pressure of putrefactive gases formed in the abdomen.

(*i.*) *Abortion produced.*—In 20 cases abortion followed, but death ensued in all. *All* of these cases (except one at four months) were under six months pregnant. The oldest pregnancy noted was that in which attempts to produce miscarriage were unsuccessful. In two instances it is quite uncertain from the documents as to whether abortion was or was not produced. It will be unnecessary to refer to the relative success in producing miscarriage of the various agents employed. There was—except in the cases alluded to at (*h.*)—much success attained with the different means employed in emptying the uterus, but these, unfortunately, were no less successful in killing the women.

(*k.*) *Signs of Mechanical Injury to Reproductive Organs.*—In nine cases there were signs either of direct mechanical injury or of local injuries, or conditions which were more likely to have been produced by violence than by the normal pathological causes which might be present in cases of natural abortion.[1] *One* case had the cervical and uterine mucosa inflamed, and the peritoneal coat of the womb also; the fœtus (six months) was *in utero*, but the membranes were ruptured; and "battis" were found in the uterine cavity. In a *second* case the uterine wall was perforated by a "batti," and much pelvic peritonitis was present. In a *third* case pelvic peritonitis was very marked (of course, it may have been of septic origin only). In a *fourth* the vagina was much congested. In a *fifth* the os was patulous, and it and the fourchette were lacerated. This, of course, might be explained as due to the delivery of the five months' old fœtus[2] in this case, but it seems just as likely that the rupture was caused by clumsy efforts to dilate the cervix or to pass instruments through it; in any case, it is indeterminate. In a *sixth* the os was lacerated and patulous. In this case an attempt had been made to place a cotton-wool pledget in the cervix,—the presence of a four months' fœtus in this case lends probability to traumatism as the cause of the lesions. In a *seventh* the right uterine cornu was blackened (? by decomposition; if so, the decomposition at this point would be more marked because of the antecedent inflammation there), and was perforated by a twig, 5 inches long, found lying in the uterine cavity and fixed into the fracture. This exemplifies a cause of death in many of these abortion-stick ("batti") cases; the stick is passed into the uterus without, perhaps, wounding or perforating the walls; the fœtus is expelled, but the early contractions of the uterus for this purpose do not often expel the foreign body, which is generally driven through the fundus by the contractions of the uterus on it. Death in this case was from peritonitis and septicæmia. In the pelvis there was found some bloody fluid. In the *eighth* case the vulva was swollen and the vagina congested; and in the *ninth* case the mucous membrane of the uterus was much congested.

In 13 cases there were no signs of mechanical injury present, and in the remaining two the data supplied were insufficient to found any opinion on.

(*l.*) *Distribution* (*i.e.*, *throughout the Punjab*) *of fatal cases referred.*—Chakwal contributed three cases; Gurdaspur, Jullundur, Sealkote, Pind Dadan Khan, Rawalpindi, Umballa, Multan, each two;

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[1] Nos. 3, 4, 5, and 9 are doubtful, but it is more convenient to class them as I have done, as the probability in each case was much more for local injury than for ordinary septic effects as a cause of the morbid signs present.

[2] I speak with much diffidence on the point of rupture of the cervix by four and five month fœtuses; but, in my limited experience of abortions *at these periods*, I have never yet seen the cervix ruptured by the passage of the fœtus through it.

Ferozepur, Ludhiana, Jhang, Jhilam, Dera Ismail Khan, Hoshiarpur, and Gurgaon, each one. There is a point of interest in connexion with the cases from Chakwal and Sealkote, in that the first two from Chakwal as well as both those from Sealkote occurred very rapidly one after the other. This suggests the *possibility* that the second cases were the work of the abortion-mongers who were responsible for the first two cases in each place. (There was no self-induction of the abortion in any of these four cases.)

It only remains now to detail the individual cases more or less fully as the circumstances demand in each particular case.

(*m.*) *Post-mortem and other details of cases not included under preceding headings.*

I. *By General Means.*

(1.) *Symptoms.*—Stated to have been ill for three or four days; fever; headache; hæmorrhage from vagina; no mark of injury to pudenda or vagina; breasts not full; linea albicantes on breasts and lower part of abdomen; pupils dilated (? from anæmia due to hæmorrhage). *Post-mortem:* Cerebral membranes slightly engorged with blood. Both lungs turgid; no consolidation. A small amount of clotted blood in both heart ventricles. Gastro-intestinal tract normal. Vulva, no marks of injury; vagina somewhat dilated. Uterus enlarged, and contains large blood-clot; its mucosa is thickened and ulcerated (old ulcers); weighs 4 ozs.

(2.) This case was one of suicide by opium, the deceased being "illegitimately" pregnant. No symptoms detailed. *P.-M. Report.*—Body generally very anæmic. Teeth clenched. Rigor mortis in arms (time of death and of examination not given). Right hand clenched with thumb below fingers (? "fit" before death, or from rigor mortis). Lungs intensely engorged with dark fluid blood. Right heart empty (? by gaseous pressure from abdomen). Left side also empty. Stomach contained about 3 ozs. of dark brown fluid, with slight opium-odour. Otherwise healthy. Brain and membranes normal (congestion—particularly of the meninges—is the rule in death from opium). Small intestine healthy and empty. Large intestine—mucosa congested just above cæcum. Right kidney congested. Bladder contained some urine. *Reproductive System.*—No external marks of violence on pudenda, etc. Vagina healthy. Cervix would not admit the little finger. Uterus, $6\frac{1}{4}$ ozs., 3 inches long, 2 inches broad (therefore pregnancy had probably reached the third month.) The endometrium was congested, and a small part of the superior posterior surface was raised, roughened, and denuded (placental site). Uterus contained small shreds of coagulated blood.

(3.) *Aconite and Opium Case.*—Widow, whose stomach and contents, liver and uterus, with cervix and upper portion of vagina, were forwarded to me, and in the first three of which I detected aconite and opium, as well as, in the uterus, opium alone. *Symp-*

toms.—Two hours after her last meal of rice, milk, and sugar she suffered from bitter taste in mouth, food tasteless, sense of obstruction in the throat, headache, giddiness; vomited thrice, faint, paresis of limbs, great restlessness, tickling at nape of neck, insensibility, with intervals of consciousness, gastric pain, purged twice, convulsions, death.

P.-M. (time after death not stated).—Rigor going off; old adhesions right pleura. Right ventricle contained some dark blood. Tonsils not swollen or enlarged (the relatives had advanced the idea of death from tonsillitis). Stomach contained *c.* 5 ozs. of very black (from opium) liquid, and a good deal of mucus; no food. No congestion of mucosa. Liver slightly congested. Spleen—firm, enlarged, 16½ ozs. *Reproductive System.*—No sign of mechanical injury to pudenda, vagina, or uterus. Uterus externally inflamed, and contained blood-clot and immature, adherent placenta. Pregnancy at the third month.

(4.) Mussulman female, æt. 18; no symptoms given. I detected nutmeg in the stomach, its contents, and in the fæces.

P.-M. (thirteen hours after death).—Abdomen distended with gas, and peritoneal sac contained some opaque fluid. Stomach and intestines contained much thick, dark-brownish fluid. Mucosa of both pale and normal. Uterus enlarged, 5 inches broad and 7 inches long (therefore about the beginning of the fifth month). Walls thickened. Endometrium covered with shreds of greenish membrane. No fœtus found *in utero.* No fresh clots.

(5.) No substance likely to be used as an abortive was detected in the stomach and contents and portion of the intestines and liver sent to me in connexion with this case, but as the abortion was induced, and no local signs were noted, the case is classed as "general."

P.-M. (time not stated).—Brain membranes congested, also right cerebral hemisphere (whether on surface or on section is not specified). Each pleural cavity contained *c.* ½ pint blood. Pleuræ slightly congested. Right heart contained clotted blood. Stomach nearly full of yellow bile. *Reproductive System.*—Breasts enlarged. Uterus empty, but had recently contained a fœtus; weight, 19 ozs.; length, 6¼ inches; breadth, 5½ inches (therefore at fourth month).

(6.) Stomach, liver, spleen, and kidney forwarded. Large quantity of black pepper found in stomach.

P.-M. (no time given). Age, 25. Pleural adhesions (old) on both sides. Both lungs hypostatically congested. *Reproductive System.*—Vagina dilated, and contained clotted blood. No wounds or signs of violence. Uterus enlarged, soft, and dark-coloured (early decomposition; the uterus is said to be the viscus which of all others decomposes slowest). Pregnancy advanced to between fourth and fifth months. Womb contained clots, and presented the usual puerperal characters.

(7.) Woman, aged 25. Mercury detected in the stomach contents and liver, but not in the uterus. Self-induced case. Died without aborting, the fœtus being expelled after death (by gaseous distension of abdomen).

Symptoms.—Stated to have had fever for four days before death. Her last meal consisted of wheaten bread, dal (a kind of pulse), and milk; eight hours after, she suffered from restlessness, complained of thirst, headache, and much gastric pain. She suffered from severe purging. Fainted, but on recovery remained sensible till time of death.

P.-M. (no time stated).—Stomach normal, and contained some food of very yellow colour (? bile-stained). Vagina dilated *and inflamed.* Uterus about fourth month of gestation. Endometrium "corroded." Appendages much inflamed.

(8.) This case (in whose house some nutmeg-paste was found by the police) apparently died from an attempt to procure abortion by general means. The post-mortem report only details the dimensions of the uterus, $3\frac{1}{2}$ inches long, $2\frac{1}{2}$ inches broad, 3 ozs. in weight (the pregnancy would, therefore, have advanced to the third month).

(9.) ? *Suicide by Opium.*—No symptoms given. Lungs hypostatically congested along post. borders. Pericardium contained *c.* ʒij. bloody serum. Heart normal. Venæ cavæ engorged. Stomach: mucosa besmeared with black substance (which I found to be solid opium), pale, except at one part (not specified) where it had a "dirty red" colour. *Reproductive System.*—No injury to pudenda, vagina, or cervix. Cervix dilated sufficiently to admit two fingers. Uterus, 7 ozs., flabby, empty; mucosa smooth, and of a greenish-blue colour, except over an area of $\frac{1}{2}$ inch by $1\frac{1}{2}$ on anterior wall at fundus, where it was granular and reddish (placental site).

(10.) *Arsenic Case.*—Stomach and contents, liver and kidney, all contained arsenic (separated by Reinsch's process).

P.-M.—No food in stomach, which contained a few seeds of cannabis indica and "dal" (pulse). Uterus enlarged, empty; $7\frac{1}{2}$ inches long, $14\frac{1}{4}$ ozs. (therefore gestation reached fifth month); mucosa congested; "signs of recent abortion."

(11.) Case sent up for irritant poisoning in connexion with abortion. Stomach, vomit, and liver showed on analysis no signs of any poison having been given. Patient (æt. 16) had suffered with rheumatism for nearly five years. *Symptoms:* She was given some curds which were alleged to have contained some drug capable of producing abortion. She suffered from great nausea and vomiting, thirst, faintness, headache, pains in limbs (? rheumatic), and became insensible. Abortion occurred.

P.-M. (time not stated).—Stomach's condition not mentioned. Intestines contained semi-fluid fæces. Uterus, $6\frac{1}{2}$ inches long, $3\frac{3}{4}$ inches broad (therefore at fourth month); much blood-tinged fluid in its cavity; no fœtus present, but decomposed placenta and membranes attached to uterus. No signs of physical injury.

II. *By Local Means.*

(12.) In this case abortion did not result (six months' fœtus), though death did. The stomach and contents and liver were forwarded, but no poison was detected in any of them. Some "battis" forwarded were smeared with "Lal Chitra" paste. The woman, æt. 20, was found lying about a mile from her village with her hands and feet cut off, and with mud in her mouth. There was a quantity of jewellery on the body (death had occurred a few hours before it was found), so robbery formed no part of the motive for the assault which had been committed on her.

P.-M. (day after death).—Rigor present; brain not examined; heart filled with ante-mortem clots; no lineæ albicantes. On opening abdomen serum was found in the flanks, and the peritoneal coat of the womb was inflamed. Stomach had inflamed patches, congested puncta, and contained much tenacious mucus, as well as 2 ozs. of yellow fluid. Intestines normal. Liver enlarged; weighed 4 lbs. 2 ozs. Spleen enlarged; weighed 1 lb. 2 ozs. *Reproductive System:* Breasts full and prominent, nipples projecting, and areolæ dark coloured. Vagina dilated, with portion of anterior wall partially prolapsed; cervix dilated *and inflamed.* Membranes ruptured. "Battis" found in uterine cavity close to internal os, where uterus was inflamed. Peritoneal coat (as already noted) inflamed. Female fœtus *in utero,* about six months old. Placenta entire. Portions of membrane found, but no liquor amnii.

(13.) Crude carbonate of sodium was detected on a piece of cotton wool, which was found in a rent in the uterine wall (hence, in all probability, it was inserted at the end of a rigid body, twig, etc.). Death from peritonitis on account of the uterine rupture. Stomach contained some bismuth (given, no doubt, medicinally to arrest the vomiting from the peritonitis). "External and internal genitals red and irritated." Hæmorrhage from vagina, and collapse, are the only references to symptoms in the report. The case is remarkable as an alleged self-induced one by local means, most self-induced cases being by general means.

(14.) A piece of wood, 1 inch long and $\frac{1}{6}$ inch thick, was the means by which abortion was procured in this case. She was also stated to have taken an abortive drug by the mouth, but there were no traces of it in the stomach and contents (which, as in the last case, contained bismuth) or in the liver. The body was buried, death having been stated to have resulted from "fever." Suspicions arose, and it was exhumed four days after burial. The case was that of a Mussulman, æt. 25.

P.-M.—Slight left pleural adhesions; stomach contained 6 ozs. of undigested food; no other appearances noted. Vaginal and rectal mucosa prolapsed (? by intra-abdominal gaseous pressure). Vagina congested. Uterus large, flabby, and endometrium highly vascular; weight, 12 ozs.; measured 6 inches at broadest part, and 7 inches long (five months pregnant). The piece of wood above described was found penetrating the uterus at its junction with the cervix.

(15.) Five battis, each 2 inches long, 1 line thick, and covered for two-thirds of their length with cotton wool, coated with a paste of pounded nutmeg; and a cloth stained with blood (mammalian, probably human, but on this point, of course, no opinion can be expressed positively in the present state of our knowledge). There are stated to have been no vaginal or uterine injuries. Cause of death was peritonitis following attempts to produce abortion.

(16.) The stomach, contents, liver, and one kidney were examined, with negative results, for abortives and poisons generally. The woman died after nine days' pyrexia, and the case aroused police suspicions, as she was known to be pregnant.

P.-M.—Mammæ enlarged, areolæ dark, fourchette lacerated, vagina dilated, cervix patulous and lacerated. Uterus, 1 lb.; 7 inches long, and 4 inches broad at fundus (therefore at the beginning of the fifth month); cavity empty, endometrium dark-coloured (? from congestion). Stomach is noted as containing about 1 oz. of semi-liquid contents and as being slightly congested.

(17.) The stomach, liver, one kidney, and uterus were examined for poisons with negative results. A pledget of cotton wool, stated to have been found in deceased's vagina, was found smeared with a paste of pounded croton seeds and aloes.[1]

P.-M.—Stomach empty; large gut contained scybala; pledget of wool in vagina; cervix patulous and lacerated. Uterus dilated, empty; endometrium dark-coloured; weight, 7 ozs.; 6 inches long, and 4 inches broad at fundus (four months pregnant). In this case the death was reported to the police as from abortion by a relative.

(18.) Here the stomach contents, liver, and uterus were examined for poisons without result. On a pledget of cotton-wool,[1] alleged to have been found in deceased's vagina, very fine particles of white arsenic were detected, and on sublimation the typical arsenious acid crystals were obtained. *Symptoms:* She was last seen to drink a preparation of kharbuza seeds. Three hours after, abortion symptoms came on. She fell asleep, and this deepened into insensibility, and death followed.

P.-M.—Stomach contained a small amount of bilious fluid. Small intestine inflamed in patches; creamy contents. Heart empty, and contracted, with ʒij. bloody serum in pericardial sac. *Reproductive System.*—Vagina contained blood-clots and the wool pledget. Uterus, 5 inches long, 3½ inches broad (well on in the third month of pregnancy), empty and anæmic. Cervix dilated to 1½ inch diameter, with margins thin and sharp. Ovaries decomposed.

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[1] In both these cases it is very probable that the pledgets had been placed *in situ* by fingers, and not on any stem or improvised probe.

(19.) In this case the viscera contained no poison that I could discover, but two pledgets of cotton wool found in the deceased's vagina showed, by Reinsch's process, arsenic.[1] No post-mortem or other details.

(20.) No poison detected in the stomach and contents or liver.

P.-M.—Vulva swollen. Whole genital tract congested. Uterus at fifth month; cavity, 6 inches by 4 inches; portions of decidua present.

(21.) In the stomach, liver, and uterus no poisons were found. On a cotton wool pledget, found in the cervix,[1] saffron was alone detected. Relatives stated that deceased had suffered from fever (?) for twenty days.

P.-M.—Uterus, 3½ inches long, 2½ inches broad; 2½ ozs. in weight (three months pregnant); cavity empty. "Signs of recent abortion."

(22.) Here death was certified as due to peritonitis and septicæmia, the result of abortion. In the viscera sent me (viz., stomach, piece of small gut, and liver) no poison could be detected. The cause of death was not far to seek,—a piece of stick having perforated the uterus.

P.-M.—(Age 18). Stomach mucosa congested at cardiac end, probably in connexion with the peritonitis; empty. Small intestines mucosa bore some congested patches. Kidneys congested. Bloody fluid in pelvis. Uterus enlarged; weighed 8½ ozs. The right cornu, which was blackened, was perforated by a piece of stick (not forwarded for examination) measuring 5 inches long.

This concludes the cases where clearly local means were employed.

(23.) In this case a mixture of pounded nutmeg and "gur" (molasses) was found in the pocket of a woman who had died from the effects of abortion, whether induced by local or general means it is impossible to say from the bald account sent in connexion with the case.

(24.) Here Crotalaria juncea was the alleged abortifacient. This substance was not detected in the stomach (the liver also was sent; there are no means that I know of separating any ingredient of this substance from the viscus). No account of the symptoms or post-mortem appearances was forwarded, nor was the uterus sent.

(25.) Two powders (whose contents were found on analysis to be common alum) were sent for examination in connexion with an alleged case of abortion.

(26.) Six pills (found to contain, as their active ingredient, arsenious acid) were forwarded to me for analysis in another alleged case of abortion.

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[1] In both these cases it is very probable that the pledgets had been placed *in situ* by fingers, and not by any stem or improvised probe.

VI.—A MORNING IN A LUDHIANA DISPENSARY, PUNJAB, INDIA.

By Miss Grace Haxton Giffen, L.R.C.S.

Case I. *Goitre.*—Patient was a woman, aged 30, who had just come down from the hills. The whole thyroid gland was enlarged, evidently cystic in nature, the size exceeding that of both patient's fists put together; it was hanging down over the sternum. Only complaint patient made, apart from the deformity, was slight difficulty in swallowing. But, on hearing her speak, it was noticed she was somewhat hoarse. On being questioned, she admitted that a number of people drinking from the same well had similar enlargements. Thus was suggested as a probable predisposing cause in this case one of the generally accepted predisposing causes of goitres, namely, hardness of the water drunk. On her refusing to come into hospital for treatment, patient was instructed to change the well from which she drank; she was also given small doses of iodide of potash internally, and weak applications of iodide of mercury ointment externally. *Weak* doses of iodide and of mercury were purposely prescribed, as it has been repeatedly noticed that iodism and mercurialism are extremely readily set up in Indian patients. The only possible theories I can suggest as a cause are:—(1.) The want of natural robustness in the natives from poor feeding. Yet one often sees at home that weakly patients stand the iodide very well. (2.) A habit many of the natives have of taking opium, in which case the drugs are apt to accumulate in the system, one important method of excretion being largely interfered with.

Case II. *Pseudo-hypertrophic Paralysis.*—Patient was a boy, aged 12, complaining of gradually increasing weakness, inability to run, etc. Calf muscles were hypertrophied, while pectorals and others were markedly atrophied. Typical method of rising from the supine position on the floor was present. No family history could be obtained. He was prescribed a mixture containing strychnine and arsenic.

Case III. *Negro-lethargy.*—Patient was a man of 20. He had a dull, apathetic look, noticing nothing, and not answering when spoken to. He was extremely anæmic and emaciated. His father informed us that since his illness began he always sat in that way,—never speaking or noticing anything; that the greater part of his time, night and day, was spent in sleep; if food were put into his hand, he would fall asleep, forgetting to eat it; if a bit of bread were put into his mouth, he would fall asleep while chewing it. The illness had begun six months previously with disinclination to work, gradually increasing desire for sleep, and gradually increasing want of interest in surroundings. He had been a hard-working, intelligent lad up to the time present illness began. This condition is rare in India, being, as the name implies, more common in Africa—*negro*-lethargy. It is curious that while both elephantiasis and negro-lethargy are due to, or associated with, the Filaria Sanguinis Hominis, negro-lethargy is very rare, and elephantiasis is very common, in India. Unfortunately, in this case, no examination was made for the parasite. One frequently sees cases of elephantiasis in the street; during my four months in India, however, no case happened to apply to the dispensary for advice.

Case IV. *Guinea-worm.*—Patient was a woman, aged 23. A tumour, the size of a hen's egg, occupied the left inguinal region. It lay parallel with, and in the situation of, the ilio-inguinal canal. Skin over the tumour was smooth and slightly red; fluctuation was present. Patient informed us that six months previously a guinea-worm had been removed from her left leg by a native surgeon; the worm broke when being removed. A scar, the result of the operation, still remained at junction of middle and lower thirds of leg, inner aspect. Patient remained in hospital for operation. Two days later tumour was incised; an ounce of pus was let out and a dead guinea-worm about 14 inches long. The most frequent source of infection in India is from the water.

Cases V. and VI. *Cataracts.*—Both cases were women, 45 and 50 years respectively. Both were admitted for operation. Cataracts are very common in India. One great predisposing factor is the want of fireplace and chimney in the native houses, and the great amount of smoke which comes from the dung used as fuel.

Cases VII. and VIII. *Faultily directed Eyelashes.*—Both patients were women of 30 years. Both had acute conjunctivitis secondary to the irritation caused by the eyelashes in contact with the conjunctiva. Epilation with the cilia forceps was all that was necessary. This condition is quite common in India—faultily directed eyelashes without the slightest turning in of the lid. The sufferers frequently smear their eyelashes together with some fatty substance to keep them off the surface of the eye.

Case IX. *Polypi in Outer Ear.*—Patient was a girl, aged 12. Treatment, removal by aural snare.

Case X. *Middle-Ear Disease.*—Patient was a boy, aged 7. Pus was discharging from left ear. A very evident cause was present, namely, maggots. After syringing, membrane was seen perforated. Patient was instructed to return daily for treatment—syringing and insufflation of powdered boraaic acid.

Case XI. *Phimosis.*—Patient was a boy, aged 3. The mother explained that when the child was eighteen months he could walk quite well, but had gradually fallen off it, and now could not walk without being held. On examination no atrophy of leg muscles was perceptible, and nothing wrong with any joint. Extreme phimosis, however, was present, which pointed to a reflex origin of the partial paralysis of muscles of legs. What led me to make this diagnosis was the frequent times I had seen similar cases when a student with Mr Stiles at the Sick Children's Out-patient Department, Edinburgh, and the successful result after the patient was circumcised. In the case cited, circumcision was advised, but I had no opportunity of seeing if the treatment were successful.

CASES XII and XIII. *Malarial Fever.*—Patients were girls of 16 and 18 years respectively. Prominent symptoms were fever daily for three or four days, constipation, vomiting, anorexia, headache, and pains in back and legs. Ten-grain doses of quinine thrice daily were prescribed, and a purgative was administered. The subsoil of Ludhiana district is now much better drained than it was a few years ago. Formerly fever was so common that it was known technically as the *Ludhiana fever*, in the same way as they yet speak of *Lahore sores.* This latter condition is also called *melon* or *mango sores,* and is supposed to be due to a great ingestion of, or a too frequent using of melons and mangos, both of which fruits are very watery. The theory is that the blood becomes hydræmic. The condition is seen both among natives and Europeans. The sores are generally seen on the fingers as ulcers. They are treated with caustics, but are not amenable to treatment, frequently lasting for a twelvemonth at a time. I had not sufficient opportunity to work out the pathology, but it might be allied to the anæsthetic form of leprosy, or even to Raynaud's disease.

CASE XIV. *Ague Spleen.*—Patient was a woman, aged 30. Spleen dulness was much enlarged. The organ with its characteristic notches was perfectly easily palpated; it reached even to the pelvis. Iodide of mercury ointment was applied, and patient shown how to rub it in daily. Iodide of iron and quinine were given internally.

CASES XV. and XVI. *Catarrhal Pneumonia.*—Patients were 3 and 5 years of age respectively. Both were admitted. Pneumonia, both catarrhal and croupous, is quite common amongst the natives during their cold weather, probably from want of warm clothing and sufficient house protection during the night. The houses are built in India with plenty of doors and windows for the warm weather, not for the cold.

CASE XVII. *Floating Kidney.*—Patient was a girl of 12 years. She complained of pain and "something moving" in the abdomen. On palpation a tumour was felt on the right side; it could be rapidly displaced upwards towards the diaphragm. Pain was increased on palpation. The connexion of the tumour with any of the other abdominal contents was excluded, and the kidney was palpated for in its usual position and not appreciated, before the diagnosis of movable kidney was made. On the mother's refusing to let the child in, she was instructed to let her lie in the horizontal position as much as possible; small doses of opium were administered as long as the pain continued.

CASES XVIII. and XIX. *Constipation.*—Patients were women of 30 and 35 years respectively. Indian patients require very large purgative doses to be effectual, and constipation is very common for various reasons:—(1) The amount of dry gram the natives use as an article of diet; (2) many of them are opium eaters; (3) the habit many of them have of chewing kino (their teeth and finger nails are stained with it); (4) a habit they have of chewing catechu and betel nut, both strong astringents.

CASE XX. *Constipation due to abuse of Opium.*—Patient was a baby of 6 months. It was badly nourished, very drowsy, and had pin-point pupils. On being questioned, the mother admitted to giving the baby opium frequently, as it was very fretful. Present condition was the result. The child was given a teaspoonful of castor oil, and the mother told to give it milk only.

The amount of opium consumed in the Punjab is 42 grains per head per annum. There is no restriction placed on the cultivation of the poppy in that province. On either side of Punjab is a "protected State" where "opium may be cultivated." Probably, therefore, the 42 grains mentioned is only a fraction of the actual amount consumed in Punjab. About four years ago the Government of India did agree that opium smoking shops in Punjab should be prohibited, but their good intentions were never carried out.

When they are taking long journeys the natives are accustomed to prepare their *camels* and *horses* for it by giving them opium, catechu, and molasses. On this, it is said, the animals will go for a long time without food.

CASE XXI. *Ankylosis of Knee Joint due to Habit.*—Patient was a woman of 65 years. She had not been able to straighten her leg for the last six years. It was ankylosed midway between flexion and extension. Patient was admitted for massage, etc. This condition is not infrequent amongst the natives, from the custom they have of sitting on their haunches, thighs flexed on abdomen and legs on thighs. They will sit in this attitude for hours at a time. If they are going a railway journey they never know before they come to the station when their train starts; it is immaterial to them how long they wait; if they arrive in the station at six in the morning and find the next train leaves at six in the evening, they will sit on their haunches in the station the whole time without moving, smoking and talking and looking about them.

CASE XXII. *Sarcoma.*—Patient was a woman of 30. There was a large ulcerating tumour over right knee. Duration was only three months. Microscope revealed small round-celled and small spindle-celled sarcoma. Patient was admitted, and five days later amputation of thigh was performed. She made a perfect recovery.

CASE XXIII. *Leucoderma.*—Patient was a woman of 20. She complained of disfigurement caused by a white patch on her forehead, about ½ inch in diameter. It contrasted markedly with the surrounding dark skin. She was very anxious to be rid of her deformity, so we stained the mark with iodine, which would hide it temporarily. This condition is comparatively common amongst the natives.

We may here state the case of a family of *Albinos*, Punjabis, a father, a daughter, and a son. They were as white as Europeans, and their hair was colourless. Their only complaint was, the strong sun was trying to their eyes. They have a custom amongst themselves of painting the skin beneath the lower lid with a dark pigment, on the same principle as we at home would wear dark-coloured glasses to lessen the glare of the sun.

CASE XXIV. *Eczema of Breast.*—Patient was a woman of 40. Balsam of Peru applied several times was successful.

CASE XXV. *Scabies.*—Patient was a boy of 12. Carbolic oil was efficacious. Scabies is very common.

Typhoid Fever is not nearly so common amongst the natives as amongst Europeans in India. The habit the former have of pan chewing serves as a good prophylactive. Pan consists of a green leaf daubed with lime, and inside catechu and betel-nut. The lime is antiseptic and germ destroyer. Catechu is astringent, and betel-nut astringent and vermicide.

The use of *indigenous drugs* in India is highly recommended by Government. The danger is that they can hardly be obtained pure in the local market, and adulterations cannot always be detected. The drugs at present purchased locally are :—Sennæ folia, Columbæ radix, Glycyrrhizæ radix, Ginger, Cinnamomi cortex, Oleum Cinnamomi, Chirata, Cardamomi semina, Nux Vomica, Asafœtida, Catechu, Galla, Gum Acacia, Kino, Myrrha, Oleum Anisi, Oleum Santali, Oleum Ricini.

Sawdust is frequently used in surgery in India, because of its absorbent properties. It is cheap, and can be made aseptic. Saturate it for some time in corrosive sublimate, dry it, and fill it into aseptic muslin bags. This makes a useful surgical dressing in cases where there is profuse discharge.

Part Second.

REVIEWS.

The Laboratory Text-book of Public Health. By W. R. SMITH, M.D., D.Sc., F.R.S. Edin., Professor of Forensic Medicine, and Director of the Laboratories of State Medicine in King's College. London: Henry Renshaw: 1896.

THE increasing importance attaching to laboratory work in connexion with the teaching of public health, and the strict character of the examinations for the public health diplomas, have rendered necessary the publication of special text-books on the subject. And it would appear that the highly capable teachers in the various laboratories of the United Kingdom, just like those engaged in tuition in our great public schools, should feel themselves constrained to give in text-books their own approved methods of work, and afford their students a scheme of their laboratory practice. While each school may derive advantage from this arrangement, the multiplication of text-books is bewildering to the student, and may lead to rather serious results in the course of examinations. The examiner, wedded to his own processes, is apt to decry those of some rival school and to depreciate the status of the examinee. And it is too well known that when once a false impression is made it is difficult to prevent it affecting the subsequent course of the examination.

There is no reason, however, why King's College should not vie with London University and other colleges in having a text-book of its own. The present volume is well worthy of the School and of its author. The chief merit of the book lies in its lucidity, and Prof. Smith deserves credit for thus lessening the labour of the student in mastering a somewhat intricate subject. Again, he is not above enlisting the services of past and present demonstrators in affording him assistance in the various departments of the work, and, what is specially pleasing to us, he has entrusted the revision of the section on Bacteriology to Dr Cartwright Wood, a distinguished alumnus of our School, and who most certainly should never have been allowed to leave it.

The volume is admirably printed, and has a full index. While there is no stint in providing illustrations of apparatus, bacilli, etc., etc., we must specially note with commendation an excellent series of photographs of the starches.

Altogether the author and the publishers are to be congratulated on including such a highly practical work among the new series of Renshaw's manuals.

Le Phthisique et son Traitement Hygiénique (Sanatoria, Hôpitaux spéciaux, Cure d'air). Par le Dr E. P. LÉON-PETIT, Médecin de l'Hôpital d'Ormessen; Secrétaire-général de l'Œuvre des Enfants Tuberculeux. Paris: Felix Alcan: 1895.

Les Sanatoria: Traitement et Prophylaxie de la Phthisie Pulmonaire. Par le Docteur S. A. KNOPF. Paris: Georges Carré: 1895.

THOSE two volumes record the high-water mark of systematized effort for the relief of tubercular patients in hospitals and sanatoria, more particularly throughout Europe.

In the former, Dr Léon-Petit reports his observations after an extended journey among such institutions, undertaken in response to a request by the Minister of the Interior of France. His tour of inspection included hospitals erected for paying patients, such as those of Görbersdorf, Falkenstein, Hohenhonnef, and several in the Black Forest and the Harz, and similar institutions in Norway, Switzerland, and other countries; and likewise hospitals erected for poor patients in those countries and Great Britain. The general tenor of the work is much in favour of the establishment of sanatoria, and their more efficient working. In addition, he discusses the hygienic treatment of pulmonary tuberculosis in all its aspects.

Dr Knopf's work is the outcome of careful study on the spot of many of the hospitals and sanatoria for the treatment of the disease throughout the world. It is well up to date, containing, *e.g.*, an account at some length of the Victoria Hospital for Consumption, Craigleith, Edinburgh. He pleads strongly for the erection of special sanatoria for the relief both of poor and paying patients.

Alike on pathological and social grounds those two observers are agreed in the efficacy of the system which has the growing support of all who have seriously considered the subject. They recognise, as all must, the difficulties which have to be dispelled before general adoption of the plan may be expected. But they believe themselves entitled to anticipate that these must disappear spontaneously, when a fair and full view of the issues which are involved has been attained.

The Biological Problem of To-day: Preformation or Epigenesis? Authorised Translation from the German of Prof. Dr Oscar Hertwig of the University of Berlin. By P. CHALMERS MITCHELL, M.A. Oxon. With a Preface by the Translator. London: William Heinemann: 1896.

PROF. HERTWIG'S vigorous polemic against Weismannism is here presented to English readers by Mr Chalmers Mitchell. Prof. Hertwig is well known for his numerous contributions to Comparative Embryology, and in this volume he summarizes the conclusions to which his observations have led him. The book is divided into three parts,—an Introduction giving a historical sketch of the point at issue, a criticism of Weismann's position, and, finally, a statement of Hertwig's own views. The English edition includes also an introduction by the translator, and an index and glossary.

The statement of the question is, or seems to be, a simple matter. Is development merely an unfolding of a previously existing complexity, an evolution; or is it an epigenesis, a new formation of complexity? Weismann's conception of the germ-plasm as a substance of great complexity of composition existing apart from the general protoplasm of the body, involves of course an evolutionary view of development, while Hertwig advocates a modified epigenesis. His main points of attack are, first, Weismann's assumption that cell-division may result in the formation of two cells of unlike qualities (differentiating division), and second, the assumption that the cause of all the characters of the ultimate product is to be sought in the characters of its *Anlage*.

In attacking the first position, Hertwig brings forward numerous instances in which cell-division must result in the formation of two cells of like qualities (doubling division), and strongly opposes the proposition that all the qualities of cells are predetermined by the nature of their nuclei. Secondly, he opposes the doctrine of determinants on the ground that it fails to allow for the effect of environmental influences during development, and ascribes to cells qualities which result only from the co-operation of cells. Hertwig's own theory of development is largely a reiteration of this position. All the cells of the developing organism contain unaltered idioplasm, the ultimate differences are due to the action of environmental influences which allow certain *Anlagen* only to develop.

In criticism it can only be said that although Hertwig deserves much credit for drawing attention to the (probable) effect of environment upon the developing organism, his theory as a whole lacks the beauty and completeness of the one he attacks. The kernel of the dispute lies in the question whether the organism responds directly to its environment, or whether the apparent response is not really due to an inherited mechanism,—to adaptation, and this is a question which can hardly be settled off-hand.

Mr Mitchell's introduction is clear and simple, and will be found useful to those approaching the subject for the first time. The translation is readable throughout.

A System of Surgery. Edited by FREDERICK TREVES. Vol. II.
London: Cassel & Co.: 1896.

THE completion of this important work will afford much satisfaction to every one interested in the study and practice of surgery, and we cordially congratulate those who have been concerned in its production. Like its predecessor, it forms a handsome and not unwieldy volume of over eleven hundred pages; it is profusely, and on the whole very well illustrated. The different sections of the work are, for the most part, written by surgeons whose names are identified with the particular department assigned to them, and they may be accepted as authoritative treatises upon the subjects of which they treat; as such we may instance: the Surgery of Deformities, by Mr Clutton; the Surgery of the Chest, by Mr Pearce Gould; of the Abdomen, by Mr Treves; of the Breast, by Mr Watson Cheyne; of the Urinary Organs, by Mr Henry Morris; of the Female Genital Organs, by Mr Bland Sutton, etc. Where the general standard of excellence is so high, and the amount of well-digested information so considerable, we almost feel constrained to apologise for referring to the following points, among others, which have attracted our attention in looking through the volume. In the surgery of deformities we find no mention of the operative treatment of club-hand. In Mr Percy Dean's very able article on Injuries and Diseases of the Head, we find in the description of the procedure known as osteoplastic resection of the skull, that the section of the bone is directed to be made with the gouge or chisel, when as a matter of practical experience the saw has been found to be infinitely superior; and further, there is omitted the important detail, that the section should be bevelled, not only in order that it may be made with greater safety to the contents of the skull, but that when the flap is replaced it may rest securely upon the bevelled edges of the gap. In the excellent article by Mr Bernard Pitts on the Injuries and Diseases of the Neck, we notice that the common innocent tumour, or endothelioma of the parotid, is still described under the misleading term of adenoma or fibro-chondroma.

In giving an account of the operation for empyema in the chapter on the surgery of the chest, it seems a little out of date for Mr Pearce Gould to inform the reader that "the operation should be conducted with full antiseptic precautions; the spray is not requisite"! Mr Bruce Clarke does not furnish any directions as to the treatment of non-malignant stricture of the œsophagus, but leaves the reader to infer that the treatment is conducted on the same principles as in the stricture which results from cancer.

Mr Frederick Treves writes of the injuries of the abdomen in his best style. In the surgical treatment of the affections of the stomach, however, the reader may be pardoned if he makes the inference that the distinguished author has not had much personal experience of the affections in question. In support of this inference we may instance the recommendation that the edges of a perforated ulcer of the stomach are to be pared as a preliminary to suture; the description of the curetting of a pyloric cancer "as a measure to be reasonably employed for affording temporary relief"; the performance of the operation of gastrostomy in two stages; and the following criticism of the results of the procedure —" The feeding is difficult and the general after-treatment of the case complex; the average duration of life after operation in cancerous stricture of the gullet has been estimated at 33 days; it makes the method of dying more easy—and often more speedy;" while of resection of the pylorus, Mr Treves expresses the opinion that "there is nothing to recommend the operation in malignant disease." Apart, however, from these minor defects, we have no hesitation in expressing the opinion that Mr Treves' *System of Surgery* is far and away the best work on the subject in the English language.

Chirurgie Opératoire du Système Nerveux. Avec 431 Figures. Vol. I.: Chirurgie Cranio-cérébral. Par A. Chipault. Paris: Rueff et Cie: 1894.

This is a most valuable work for surgeons. There is a very careful account, which is well illustrated, of the relations of the various convolutions of the cerebrum to the surface of the skull, and the various modes of determining the guiding fissures are described and figured. Then follows a chapter on operations for penetrating wounds of the skull, with a description of the various instruments in use. We are glad to see representations of circular saws of various kinds. Different modes of making the flap and of opening the skull are also shown. An account is given of the modifications of the operations necessitated by tumours of various form and position, with an account of 134 cases in which operation was performed.

The chapter devoted to operations for lesions at the base of the skull is introduced by an illustrated account of the position of the venous sinuses and the arteries in relation to the floor of the skull, and of the various air-sinuses and the mode of reaching them.

The account of operations for diseases of the internal ear and mastoid antrum is very thorough, and well illustrated.

The illustrations which accompany the work appear to have been drawn by the author. They are clear and instructive, and lend themselves readily to rapid consultation. Each chapter is furnished with an exhaustive bibliography.

This volume concludes with an account of the operations recommended for microcephaly, hydrocephalus, and encephalocele.

On the Relation of Diseases of the Spinal Cord to the Distribution and Lesions of the Spinal Bloodvessels. By R. T. Williamson, M.D. (Lond.), M.R.C.P.

This is a reprint of papers previously published in the *Medical*

Chronicle. It gives a full and accurate account of the vascular supply to the spinal cord, followed by a consideration of various diseases of the cord with reference to the probability of their origin from vascular lesions. Although we cannot agree with all the conclusions drawn, we fully acknowledge the great value of the work in focussing attention upon the state of the vessels as an all-important factor in the etiology of disease of the spinal cord.

The Modern Treatment of Stone in the Bladder by Litholapaxy; a Description of the Operation and Instruments, with Cases Illustrative of the Difficulties and Complications met with. By P. J. Freyer, M.A., M.D., M.Ch., Surgeon Lieutenant-Colonel Bengal Army (retired). Second Edition. London: Baillière, Tindall, & Cox: 1896.

The value of this work is enhanced by the addition, in the present edition, of chapters dealing with the details of the operation as applied to young children and females, and in a still higher degree by a consideration of points of difficulty in the operation, and a new method of diagnosis of small calculi by means of the aspirator and canula, the stones falling against the latter with the in-rushing fluid in cases where the sound failed to show their presence.

Dr Freyer has made the operation thoroughly his own; his cases number 610, the stones being of all sizes and varieties, and his patients of all ages, of both sexes, and in all possible health conditions at the time of operation. He has advanced the cause of the operation by valuable modifications of the instruments, and by his most successful series of cases—610 operations in 598 patients, with nine recurrences and 11 deaths.

Dr Freyer, foreseeing the statement that Eastern patients, taken alone, show in statistics more favourably for operations of the sort than would Europeans, combats the idea of any racial distinction, and finds his lithotomy results fairly coincide for the two races.

Based on experience such as his, Dr Freyer's opinions must carry weight, and his many valuable hints to operators should be carefully regarded.

He emphasizes the opinion that indiscriminate and frequent recourse to litholapaxy by an inexperienced surgeon is not justifiable, yet he declares that the operation is destined to replace all forms of lithotomy save in very exceptional cases.

The work is one to be most strongly commended to all workers in this department as a weighty and valuable pronouncement on the modern treatment of stones.

Lectures on Appendicitis, and Notes on other Subjects. By Robert T. Morris, A.M., M.D., Fellow of the New York Academy of Medicine, etc. New York and London: G. P. Putnam's Sons: 1895.

Dr Morris's four lectures upon Appendicitis, which constitute the main part of this volume, form a most useful and timely contribution to the literature of the subject.

The discussion of the various questions which arise in the consideration of this matter, is based upon the bacterial relations of the disease,—its origin as "an infective exudative inflammation . . . . originating in any local cause for the production of an infection atrium in the tissues of the appendix, and progressing by bacterial invasion." First occurs a mixed infection, but with a tendency later on the part of the streptococci and colon bacilli to outstrip all others; and finally, an infection by the latter organism in most instances, other organisms being destroyed.

The author shows how the individual features and symptoms of the cases depend on the organism which is at work, on the depth of the invasion of the tissues, and on complications arising by arterial blockage, nerve implication, involvement of peritoneum, and so on.

The disease, he thinks, is one; the various phenomena not indicating different kinds of appendicitis, but different forms of one disease: a position simpler and more reasonable than those which require an arbitrary division of the cases into distinct groups.

Dr Morris holds that the knowledge we have of the ætiology and pathology of the condition, makes it a duty to interfere surgically in all cases. He regards cases of "catarrhal" appendicitis as really catarrhal colitis with implication of the appendix,—not properly called appendicitis, nor to be treated as such.

He places the death-rate of operation at the proper time by skilled operators at less than 1 per cent., and regards the dangers of non-interference as very real. Typical cases are described in detail as to symptoms and progress, and then the operation is described, a small incision being strongly urged, but no rule laid down as to the removal of an adherent appendix; that, says the author, must depend on the qualifications of the operator. One hundred cases are summarized in conclusion.

The lectures will certainly repay careful perusal, and so will other shorter papers which the book contains.

The illustrations are particularly good and numerous, and the publishers' work is well done.

Operative Treatment of Aneurisms of the Third Portion of the Subclavian Artery. By EDMUND SOUCHON, M.D., New Orleans. Philadelphia: University of Pennsylvania Press: 1895.

THIS *brochure* presents a very exhaustive and instructive analysis of 115 recorded cases collected and considered by the author. They are grouped for discussion into aneurisms of the right side and of the left, and under each of these are subdivided into traumatic, idiopathic, and recurrent. The right side is that commonly involved—in 85 out of 120 cases.

The analysis of the records as regards mortality of operation shows that of 115 cases operated upon, 40 (*i.e.*, 35 per cent.) were cured. In the case of traumatic aneurism the proportion cured was 19 out of 31 (66 per cent.), and of idiopathic aneurisms 21 out of 81 (25 per cent.). The practical deductions as to the treatment which experience of the records seems to prove to be best, are important, and in this particular aspect the facts are very exhaustively dealt with.

In recapitulating the complications found to arise, Dr Souchon states that 79 cases (60 per cent.) presented such complications, viz., hæmorrhage in 48 instances with 10 recoveries, sepsis in 15 with 5 recoveries, cerebral symptoms in 5, which all ended fatally, and other interesting details which we cannot particularize. The book is carefully compiled, the references to authors very complete —no less than 176 being given in the bibliography; the result of painstaking research and sound reasoning on the facts obtained, it is well worthy of attention.

Handbook of Diseases of the Ear, for the Use of Students and Practitioners. By URBAN PRITCHARD, M.D. Edin., F.R.C.S. Eng.; Professor of Aural Surgery at King's College, London; Aural Surgeon to King's College Hospital; Senior Surgeon to the Royal Ear Hospital. Third Edition, with Illustrations. London: H. K. Lewis: 1896.

WE have already had occasion to notice favourably the earlier editions of this most excellent little work, and it is now so well known as a text-book that it does not seem to require more than a passing notice at our hands.

The present edition has been revised, amplified, and the part dealing with mastoid disease and intra-cranial complications has been re-written in accordance with the advances made in this section. The busy practitioner who does not care to face some of the large text-books on this subject will find this small handbook a thoroughly practical and safe guide, while the hard-pressed student will welcome the concise yet clear and readable manner in which it is written.

Short Contributions to Aural Surgery. By Sir WILLIAM B. DALBY, F.R.C.S., M.B. (Cantab), Consulting Aural Surgeon to St George's Hospital. Third Edition. London: J. & A. Churchill: 1896.

THIS little volume contains nineteen short papers reprinted from *The Lancet* between 1875 and 1896, and the *British Medical Journal.* Our readers have doubtless already made acquaintance with many of these articles when originally published in the journals, and may be glad to refer to them again. The subjects dealt with cover such a wide range in Aural Surgery that a detailed notice of them is not possible here. They are pleasant and readable little essays, and contain much that is of interest, but we confess that they hardly seem to us heavy enough metal to have called for republication in book form. However, it speaks strongly for the writer's popularity that the book, which is not a work of reference nor a text-book, should have attained a third edition.

Rheumatism: Its Nature, Pathology, and Treatment. By T. J. Maclagan, M.D. Second Edition. London: A. & C. Black: 1896.

It is now twenty years since the first edition of this work appeared, and that time has amply proved how valuable, indeed how indispensable, is the treatment of acute rheumatism by the salicyl compounds, with which Dr Maclagan's name is so honourably associated, and which the former edition was published to make known and to defend. In the present volume the author discusses, first, the various forms under which rheumatism appears, and the diseases from which it requires to be diagnosed, and points out that it is an inflammation confined mainly to the fibrous and serous tissues concerned in active movement, and to the muscles. In discussing its causation, he shows how untenable is the theory that it is due to changes in the nervous system, and he discusses at considerable length the view that it is due to excess of lactic acid in the blood. He acknowledges that lactic acid is present in excess, but maintains that this is a phenomenon of the disease, an essential phenomenon indeed, but not the cause of it. Lactic acid is a product of the metabolism of the motor apparatus, and its production is greatly increased in rheumatism where that apparatus is diseased. Its elimination stimulates the skin and gives rise to the characteristic perspiration, and if its formation exceeds its elimination, the other symptoms may well be aggravated by its excess. He believes that acute rheumatism is miasmatic in character, that it is intimately related to the malarial fevers, and that it is caused by an organism whose special nidus is the fibrous tissues of the motor apparatus, just as the malarial organism has the blood for its nidus. The many characteristics which rheumatism possesses in common with the malarial fevers are pointed out; the relation of both to locality, to climate and to season, to personal predisposition, their common indefiniteness of duration, and their resemblances in clinical history, such as irregularity of temperature, perspiration, liability to recurrence, and so on. Not only is there a pathological analogy, there is also a therapeutic analogy in the fact that both diseases are capable of specific treatment,—the one by the alkaloids of cinchona bark, the other by the products of the willow bark. Further, both fevers are sharply separable from the contagious fevers, though relapsing fever forms to some extent a link between them.

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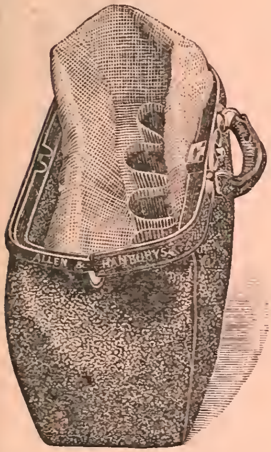

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The argument is well carried out, and has only the one flaw, that no one has as yet demonstrated the organism of rheumatism.

The author then passes to discuss the different phenomena and complications of the disease, and explains very clearly the production of each; the causation of valvular disease is particularly well described, and an instructive comparison of the heart with a joint is made to do good service. He insists that affection of the valves must often be present before any physical sign gives evidence of it; but, on the other hand, he takes a rather more hopeful view of the power of early treatment over endocarditis than one is accustomed to. Salicin is preferred to salicylate of soda in treatment, and large doses are regarded as necessary—30 grains hourly till the temperature falls and pain becomes less. About an ounce is usually necessary to produce this effect, and the sooner this ounce is given the better. The drug must then be continued for ten days in smaller doses. Some interesting cases are given which show the efficacy of this form of treatment.

The book is a readable one, contains many useful hints and suggestions, and should serve to enhance the reputation of the author.

Die Otogene Pyämie. Von Dr HUGO HESSLER, Docent der Ohrenheilkunde an der Universität Halle. Jena: Verlag von Gustav Fischer: 1896.

THE author of this volume of 500 pages upon pyæmia following middle-ear suppuration, must be congratulated upon the most efficient way in which he has treated his subject, and upon the completeness and thoroughness of the work, though we are inclined to ask ourselves whether all the labour and time might not have been turned in a more useful direction and much of the minute detail omitted.

Commencing with a historical synopsis of the various works that have been written in different languages upon this subject, he next considers the pathology of pyæmia in general, quoting the views of such pathologists as Virchow, Ziegler, and Baumgarten. After a brief anatomical description of the veins of the skull and the cerebral sinuses, the main part of his work is reached, and it is here that we note the great amount of labour that must have been expended in compilation. His search through the literature of the subject has resulted in the collection of 398 cases of pyæmia following middle-ear suppuration. These he has divided into four groups as follows:—

1. Sixty-four cases of pyæmia in which cure resulted without surgical interference on the lateral sinus or jugular vein.
2. Fifty-two cases of recovery after operation on the lateral sinus and jugular vein.

3. Two hundred and fifty-nine cases of pyæmia with post-mortem examination.

4. Twenty-three cases of pyæmia in which no section was obtained.

The author of each case is named, the journal in which it is recorded, and a short summary of the cases, with the condition found at the post-mortem examination, is detailed, the whole forming a complete and valuable means of reference for all who are interested in the pyogenic infective diseases of the brain and its membranes.

Considerable space is devoted to the discussion of diagnosis and its difficulties, an attempt being made, by means of tables, to bring out the chief differential features of otogenous pyæmia as compared with those of typhus, miliary tuberculosis, cerebral abscess, and purulent and tubercular meningitis.

In conclusion, we would draw the reader's attention to the result of the author's investigations upon the position of the knee of the lateral sinus. Having sought to fix this as a definite point upon the surface of the skull, he has found, after certain measurements upon sixty skulls, that there were so many deviations in these measurements, even between the two sides upon the same skull, that no point, which could be of value in practice, for defining its position, could be taken from them.

Angio-neurosis: Being Studies in Diseases of the Vasomotor System. By W. Ramsay Smith, M.B. C.M., B.Sc., Senior Physician to the Adelaide Hospital, South Australia. Bristol: John Wright & Co. London: Simpkin, Marshall, Hamilton, Kent, & Co.: 1896.

The work of which this book is the outcome has already been reported in various journals, and forms a timely contribution to an abstruse and complex subject.

Cases such as those recorded by Dr Smith are not infrequently met with in practice, but their pathological connexion is probably very frequently overlooked, and considerable trouble consequently experienced in bringing about a cure.

Dr Smith here differentiates two diseases of the group,—viz., general angio-neurotic œdema and erythema urticaria; of each of them he describes typical cases, discussing the etiology and hereditary associations.

The first-named disease is, it is claimed, quite distinct from the local angio-neurotic œdema previously described by Dr Dudley Cooper and Dr Ernest Wells. The second is likewise a constitutional disease, but the local manifestations are the more noticeable; hereditary influence is apparently an important factor in its causation, as also are climatic conditions.

The interesting questions raised on approaching the pathology of these and similar diseases are suggestively, though not conclusively, dealt with. Dr Smith's theory is that one has a paresis of the vaso-constrictor centre, induced by peripheral irritation (gastric, toxic, climatic, emotional, etc.). His treatment is to remove the cause, and give drugs to combat the neurotic basis of the disease. Arsenic, ergot, and bromide of iron he has found useful.

Dr Smith's work will certainly repay perusal.

Manual of Midwifery for the use of Students and Practitioners. By W. E. FOTHERGILL, M.A., B.Sc., M.B. C.M., Buchanan Scholar in Midwifery, University of Edinburgh, etc. Edinburgh: William F. Clay: 1896.

IN order that a text-book on midwifery, or indeed on any subject, may be something more than a compilation of the opinions and teaching of other men, the author requires to have behind him a long experience of all sorts of cases under all sorts of conditions. Yet at the present day it is rather the junior than the senior members of the profession who are the writers of text-books, and a consequence of this is the gradual disappearance of works which, like those of Smellie and Blundell, were rich in clinical experience. We fear that the consequences of this change in the character of the books put into the hands of students and practitioners may be still further to increase the tendency to cram up work which already is so marked a feature of our undergraduate life. We are led to make these remarks by the perusal of Mr Fothergill's preface, in which he says: "My best thanks to Professor A. R. Simpson for his encouragement in my work can only be adequately given in this place; for had I attempted to refer to his lectures, contributions, and papers wherever they have afforded me information, I should have been obliged to place a footnote at the bottom of every page." To several other Edinburgh lecturers indebtedness is expressed for suggestions, the use of woodcuts, etc. and when all is done it becomes difficult to see where the author comes in.

Apart from this question, upon which it would be interesting to have the views of some of the teachers whose lecture-notes and contributions have been so extensively exploited, it may be said that the book will be found to be a good one. The weakest parts are those which deal with the puerperium and infant feeding; those upon forceps and the mechanism of labour are, on the other hand, very complete and up to date. The first illustration in the book is, as regards the lie of the uterus, erroneous, and ought not to appear in "a book for Edinburgh men by an Edinburgh man;" and figure 58, representing Walcher's position, ought never to have been allowed to pass. The publisher has done his part well.

Supplement to the Atlas of the Anatomy of Labour. Containing Plates XIII. to XXVI. and completing, with those previously published, the Third Edition. By A. H. F. BARBOUR, M.A., B.Sc., M.D., F.R.C.P.E., F.R.S.E. Edinburgh and London: W. & A. K. Johnston: 1896.

IT was in 1889 that Dr Barbour published his *Atlas of the Anatomy of Labour,* and since then much has been done by others and not a little by himself to shed yet more light upon the mechanism of parturition by means of frozen sections. It is with these further contributions that the Supplement is concerned. It contains fourteen large plates beautifully executed and reproduced, and these represent the pelvic structures at all stages in labour and also during pregnancy and the puerperum. The original ones (Plates XIII. to XXIV.) are from specimens examined by Dr Barbour in association with Dr J. C. Webster; those by other authors include the work of Braune and Zweifel, Pinard and Varnier, Pestallozza, Testut and Blanc, Tibone, Mars, and Webster.

The *Supplement,* like the *Atlas,* is a work which no teacher of obstetrics who wishes to do justice to his subject can afford to do without; it is a credit to the Edinburgh School of obstetrics; and it may safely be predicted that it will be long before it finds a rival or requires to be altered, although the publication of fresh cases may necessitate a second supplement. The thanks of all those who are interested in scientific obstetrics are due to the author for the work which he has put into their hands. The publishers also have not failed to do their part well.

Aids to Obstetrics. By SAMUEL NALL, B.A., M.B., D.P.H. Cantab., M.R.C.S. Eng. Fifth Edition. London: Baillière, Tindall, & Cox: 1896.

IT is a sign of the times that a fifth edition of this member of Baillière's Aids Series should be required. The author tells us that the recently renewed interest in the operation of symphysiotomy has induced him to rewrite the section dealing with the subject, and that the book has been thoroughly revised, and corrections made in various parts; but even granting all this, we doubt whether the student will gain more than a dangerously superficial knowledge of obstetrics from the perusal of the work. Here is the description of the passage of the female catheter:—"The index finger of the left hand is placed between the nymphæ, and the papilla felt. The catheter is then passed along the finger, which guides it to the papilla." Scarcely an adequate description, we think; and this loss of clearness accompanies the attempt to pack *multum* into *parvum* all through the book.

Obstetric Accidents, Emergencies, and Operations. By L. Ch. Boisliniere, A.M., M.D., LL.D., late Emeritus Professor of Obstetrics in the St Louis Medical College, etc. Profusely Illustrated. Philadelphia: W. B. Saunders: 1896.

This is a book which is likely to prove useful to the general practitioner. It is not a treatise on midwifery, but simply a guide to the medical man in presence of an obstetric emergency, and in the absence of a reliable consultant. We believe it is well fitted to serve this purpose. Its contents are arranged in three parts: accidents to the woman; obstetric operations; and accidents to the child. In order in the first part are dealt with: abortion, puerperal hæmorrhage, adhesions and retention of the placenta, inversion and rupture of the uterus, obstacles to labour, uterine tumours, etc., complicating labour, the uncontrollable vomiting of pregnancy, induction of premature labour, syncope and sudden death in labour, puerperal convulsions, insanity, paralysis, retroversion and sacciform dilatation of the pregnant uterus, dropsy of the amnion, and hydatid mole. The obstetric operations include version, forceps, Cæsarean operations, symphysiotomy, embryotomy, and decapitation; whilst the accidents to the child are prolapse of the funis, hydrocephalus, and diseases and deformities, locked twins, fractures, and asphyxia neonatorum and umbilical hæmorrhage. Many of the sections are very well done,—*e.g.*, those dealing with forceps and the Cæsarean operation; and the illustrations (which we fancy we recognise as having appeared in Norris' *System*) are numerous and useful. The book is published at a moderate price, and is likely to be popular.

The Mother's Help and Guide to the Domestic Management of her Children. By P. Murray Braidwood, M.D., F.R.C.S., formerly Senior Medical Officer to the Wirral Hospital for Sick Children. Second Edition. London: The Scientific Press, Limited: 1896.

This little book is written simply and clearly, and the advice it contains is sound and rational. It seems to us well calculated to be helpful to the large class of young mothers whose interest in promoting the welfare of their children is in advance of their knowledge of the necessary details.

Twentieth Century Practice: An International Encyclopædia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In Twenty Volumes. Vol. V.: Diseases of the Skin. London: Sampson, Low, Marston, & Co., Limited: 1896.

Radcliffe Crocker's is the only English name which appears in this volume, which is chiefly compiled by American authors, though many of the better known ones do not appear. As a volume in a large cyclopædia the book is of considerable value, but it is not one which will be of much value to the general practitioner. The diseases have very unequal space allotted to them; thus, squamous affections, including psoriasis, occupy thirty pages, while the parasitic diseases have 100 pages. The dermato-neuroses are dealt with very exhaustively by the late Prof. Leloir in the largest and most valuable section of the book—144 pages. A most remarkable omission is any reference to tuberculosis or malignant disease. A book on skin diseases which does not deal with lupus reminds one of Hamlet without the Prince of Denmark.

A number of illustrations are introduced from well-known sources, and the book is well got up and printed. It is, however, a very evident illustration of the difficulty of handling the diseases of the skin in this way, and this is most evident in reading the section by Leloir, where we are constantly meeting with diseases, discussed by him as dermato-neuroses, which have already been described by other authors in earlier parts of the book.

The section on Eczema by Nevins Hyde is useful and practical.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections, in Photo-Lithochromes, from Models in the Museum of the St Louis Hospital, Paris. With Explanatory Woodcuts and Text by BESNIER, FOURNIER, HALLOPEAU, TENNESON, DU CASTEL, Physicians to the St Louis Hospital; with the co-operation of FEULARD, Curator of the Museum; L. JACQUET, Secretary. Edited and Annotated by J. J. PRINGLE, M.B., F.R.C.P., Assistant Physician to, and Physician to the Department for Diseases of the Skin at, the Middlesex Hospital, London. London: The Rebman Publishing Co. Philadelphia: W. B. Saunders: 1896. Part IV.

THIS fasciculus of the St Louis Atlas, which Dr Pringle in an accurate and elegant English reproduction is placing in the hands of British and Colonial practitioners, is one of quite remarkable interest. And this not only on account of the excellence of the illustrations, but because of the value of the letterpress. Two representations are given in colour of mycosis fungoides, besides numerous woodcuts. There are, it is well known, two types of this strange disease. One in which, after a period which may be very prolonged, when there may be nothing more than a markedly pruritic generalised eruption of an eczematous or lichenoid character, tumours, often bearing a close resemblance to tomatoes, arise on the skin, and either undergo absorption, or break down and ulcerate. Another, when similar tumours appear from the first, without any preliminary stage of pruritus or cutaneous eruption. The description of the first variety is from the pen of Prof. Besnier, of the latter from that of Dr Feulard. A study of the plates and a perusal of the text should not only enable the disease to be at once recognised, but the various methods at present available for coping with it—too often unsuccessfully—are fully detailed. Besnier well observes "that mycosis fungoides is frequently enough met with to justify practitioners in studying it carefully, although it was at first considered rare, mainly on account of its proteiform nature and the polymorphism of its manifestations, its periods of quiescence or of temporary remissions, and the frequently very prolonged duration of the malady itself." A third plate represents tuberculated leprosy, the characters of which are unmistakably portrayed. The leprous swelling of the ear is dealt with in a separate figure. The importance of this case, contributed also by Besnier, rests specially on the fact, that partly from his having removed at an early period of the disease from Guadaloupe to France, where leprosy can hardly be said to be endemic though still existing, partly from the administration of chaulmoogra oil and salol, while the tubercles were attacked by the electric cautery, his face, from being in 1888 that of a typical leper, has in 1896 assumed quite a normal aspect. This is emphasized by the woodcuts showing the features at the epochs named. The disease, it is true, is not entirely cured, yet recovery has taken place to a sufficient extent to permit of his living an ordinary life. The fourth plate and a woodcut are devoted to psoriasis, and in the account by Dr Feulard, appended, will be found a good sketch of this common and most provokingly obstinate ailment. From what has been said, it must be evident that the value of this Atlas increases, and it should be the endeavour of every practitioner to possess it, as a most reliable guide to accuracy in the diagnosis of a very common class of complaints.

Prize Essays on Leprosy. NEWMAN, EHLERS, IMPEY. London: The New Sydenham Society: 1895.

THE three essays which the New Sydenham Society has reprinted by permission of the Committee in charge of the National Leprosy Fund are of interest, but we cannot congratulate the Society on republishing them, as they might well have been left in their original form. They were then accessible to all interested in the subject, and we think the Society would have done better to provide us with something that we could not get elsewhere. Those interested in the subject of leprosy will doubtless read these essays with appreciation.

Transactions of the Dermatological Society of Great Britain and Ireland. Edited by JAMES HERBERT STOWERS, M.D., and LEONARD ARTHUR BIDWELL, F.R.C.S., 1895-6. Volume the Second. London: Printed for the Society by H. K. Lewis, 1896.

THIS volume of Transactions is decidedly disappointing.

Neither in size nor in interest does it even approach its predecessor. With the exception of a sensible introductory address on Cutaneous Therapeutics and Dieting by the President, and a short paper on Internal Treatment in Psoriasis, in which he speaks favourably of the salicylates in rapidly extending cases, by Dr Crocker, the volume is almost entirely composed of the baldest notes of cases and very commonplace remarks on these. Unless the Society can show better work in the future, its existence will not be a prolonged one.

Transactions of the American Dermatological Association at its Nineteenth Annual Meeting held at the Windsor Hotel, Montreal, September 17*th*, 18*th*, *and* 19*th*, 1895. Official Report by CHARLES WARRENNE ALLEN, M.D., Secretary. New York: Goodman & Co: 1896.

THE progress of the American Dermatological Association, and with it that of the study of Dermatology in the New World, can best be estimated by comparing the volume of *Transactions* before us with that published after the first meeting at Niagara in 1877. That was a rather bald production, with somewhat meagre abstracts of the papers, and contained 42 pages of letterpress. The report for the meeting held last year is a handsome volume of 192 pages, much larger in size, and with numerous illustrations. The contents, too, are of varied interest, and their perusal will demonstrate that the subjects for discussion are far from being exhausted, while the remarks made by the speakers are full of searching criticism. An article of much value, and well illustrated by coloured and microscopic drawings, is that on Angiokeratoma of the Scrotum, quite a new locality, and one which disposes of the necessary preliminary chilblain stage. Bowen's paper on the Epitrichial Layer of the Epidermis and its relation to Ichthyosis Congenita has been already noticed in these pages. Fordyce relates some peculiar examples of Drug Eruptions, but perhaps the most suggestive contribution is that of Elliot on Alopecia and Eczema Seborrhœicum. In this he throws complete discredit on the received theory of heredity as a cause of premature baldness, and brings forward much evidence to show the close relation which exists between this and seborrhœic dermatitis, while the conjoined bacteriological study of Merill lends almost conclusive support to the view of its contagiousness. The *Transactions* are well worth the attention of other members of the profession than those who devote special consideration to diseases of the skin, as many hints of a diagnostic and therapeutic sort can be gleaned from them. The get up reflects credit on both editor and publishers.

Edinburgh Hospital Reports. Fourth Volume. Edinburgh: Young J. Pentland: 1896.

THE editors continue to provide a volume replete with interest and valuable clinical and pathological material. It is true the papers are somewhat unequal; that were only to be expected, but most repay perusal, and some are valuable and suggestive contributions. The volume opens with an account of the New Royal Hospital for Sick Children, by Dr Carmichael, which will interest former students who remember the old Hospital, with its many imperfections. A short paper, which errs in being too concise and too statistical, on the Treatment of Enteric Fever by the Naphthols, is by Dr Ker. He finds that the group, though more useful than any other drug-method of treatment, yet has little effect on the pyrexia or the progress of the ulceration, and that relapses are not prevented. Dr Leith contributes an exhaustive, and a little exhausting, paper on Phlegmonous Gastritis, with a very full account of the literature of the subject, and some good illustrations. Two interesting papers follow on Pancreatitis, well illustrated with plates. Dr Gillespie gives us a paper on Carbonic Acid in Diseases of the Alimentary Tract. The figures deal for the most part with percentages, and do not carry the same conclusive proof to the reader's mind which they seemed to do to the author's. Some interesting flask experiments are given.

A remarkable case of Calcareous Degeneration of the Heart and Arteries is recorded by Drs Bramwell and Gulland. Other interesting papers are on Cardiac Pain (mostly historical); Infiltrating Sarcoma; Facial Paralysis and the Sense of Taste; Degenerative Changes in the Brain Cells of the Non-insane; and on Morbid Changes in the Ear Cartilages. Dr Gulland has a hit at the time-honoured teaching of surgical text-books in a paper on the Drug Treatment of Bacteriuria. The major part of the volume is occupied with medical papers. Amongst the surgical, Mr Stiles gives a valuable contribution to our knowledge of chronic internal hydrocephalus. Mr Berry records very encouraging results in the use of intra-ocular injections, based on the experimental work of a former house-surgeon, Dr Chasseaud.

The usual statistical tables are appended.

The volume is a good one; many of the contributions are valuable. The Plates are very well executed, and the printing and general appearance of the volume leaves little to be desired.

Transactions of the Clinical Society of London. Volume XXIX. London: Longmans, Green, & Co.: 1896.

A WELL-printed and well illustrated volume, the record of a busy year of clinical work. Many interesting and some unique cases are recorded. The Society is to be congratulated on its activity and vitality.

The Profession of Medicine: its Study and Practice, its Duties and its Rewards. By CHARLES WEST, M.D., Fellow and late Senior Censor of the Royal College of Physicians; Founder of the Hospital for Sick Children, etc., etc. London: Kegan Paul, Trench, Trübner, & Co., Limited: 1896.

DEDICATED to the dear memory of Peter Mere Latham, this little book, with its comprehensive and ambitious title, is most valuable as the final opinion of a successful, honourable, and refined old man, an opinion which no self-interest can bias, and which long experience has tested. Much of the advice given is shrewd, and all of it "makes for righteousness"—is on the side of honour and good feeling. It is the outcome of a life well-sheltered from the worries of failure or poverty, which success has not spoiled or the favours of fortune hardened into conceit. Possibly the man who has to slave in unrequited toil for his daily bread may feel that Dr West has no personal experience of how hard life is, and how difficult it is to pursue medical work as a profession and not a trade. Even the advice to the student has a cheerful optimism, like that of the successful solicitor who advised his young penniless friend how important it was always to have "£5000 in your current account." Begin by having all good qualities of body, soul, and spirit; take a university education, ending with an M.A. degree; then your five years' medical study, possibly with a year in a drug store between the M.A. and the M.B.; then a good holiday and a visit to some foreign schools. The man who can do all that, certainly has got a start from which he ought to make a good race in his professional career. Much of the advice to the young practitioner is admirably shrewd and sensible. The nursing question comes up, and while hospital nurses—disciplined, silent, and ordered, have much praise, the private nurse gets some blame, which is occasionally well-deserved. The *quæstio vexata* of professional secrecy is dealt with at great length and with excellent sense. Consultation fees, women doctors, and the out-patient question are all considered from the standpoint of a successful man, who can dispassionately consider these burning questions given above. Dr West's views on these subjects, and also on the "practitioner's rewards," are perhaps too free from the tinge of bitterness and self-pity which would have characterised the treatment of such subjects by a young and struggling practitioner in his fight for a living.

The Practitioner.

DR MORTON, a Boston dentist, administered ether to a patient in the Massachusetts General Hospital on the 16th October 1846, and Dr Warren, the senior surgeon of the Hospital, removed a tumour from the patient's neck. This year is the jubilee of the introduction of anæsthesia, and the *Practitioner* has taken part in its commemoration by devoting its pages to the subject.

Within two years of the introduction of ether, chloroform had not only been introduced, but had almost universally superseded it,—a curious fact which can only be explained on the ground that it was found much more convenient for administration, and, in the hands of its administrators, a safe anæsthetic. Sir B. Ward Richardson said of chloroform that "the word became so common in the vernacular that the people began to recognise it as synonymous with and more expressive than anæsthesia."

The pages of the *Practitioner* on this occasion seem to bear this out, as, although this year is the jubilee of ether, the tenor of the articles is a comparison between ether and chloroform, with, however, the balance of favour almost wholly towards ether as the safer and better routine anæsthetic. This method of writing is unfortunate, as the articles are rather popular than scientific, we might almost say prejudiced expressions of opinion, not impartial statements of fact. Mr Fred. W. Hewitt and Mr Rowell contribute interesting articles,—the former upon the Past, Present, and Future of Anæsthesia, and the latter upon the work of Simpson, Snow, Lister, and the Hyderabad Commission. The latter article is a fair and excellent summary of the work done by those pioneers in chloroform, but the "summary of present knowledge" "that chloroform is a dangerous drug because of its deleterious effect upon the heart," is a statement based upon the researches of Dr Macwilliam and Drs Gaskell and Shore, and is in direct antagonism to the views and beliefs of the writers whose work he describes, and seems to be merely dragged into the article with a view to condemn chloroform, "which is not the most desirable drug for routine use." So, too, Mr Bailey, although describing ether administration, finishes the article by contrasting ether and chloroform. Mr Shield has an article upon the "Need for better Instruction in the Administration of Anæsthetics," and throughout cannot get away from the allusion to chloroform as equivalent to anæsthesia. That thorough training in both the theory and practice of anæsthetics is imperative is more or less admitted by all teachers of surgery, and the necessity for this is nowhere more recognised than in Scotland, but the articles in question might almost be taken as an attack upon all chloroformists, and in particular upon those schools which especially uphold chloroform as a valuable anæsthetic. Thus on page 388 the example taken is chloroform, although it is of anæsthetics he speaks. The ignorance of anæsthesia to which he refers is certainly not manifested, as far as our experience goes, north of the Tweed.

The laudatory biographies at the end of the journal are well merited by the benefactors to mankind whose lives are shortly, but appreciatively outlined.

The editor has done well to devote the pages of the journal to anæsthesia on this the jubilee year of the introduction of ether, but we feel that a better selection of matter might easily have been attained, and that a more impartial and higher-toned series would have graced the occasion more.

The Journal of Experimental Medicine. Vol. I., No. III. New York.

THIS number contains several very interesting papers, and maintains the high promise of the Journal. Drs Abel and Davis have subjected the pigment of the negro's skin and hair to an exhaustive examination, and conclude that it is free or almost entirely free from iron, that it is not a derivative of hæmoglobin, that it is identical in kind with that found in the skin of the white races, and that its function is to protect the corium from inflammation by absorbing the chemical energy of the sun's rays. Dr Bradley finds that the large cysts of the thyroid gland which have fluid contents are generally of hæmorrhagic origin. Dr Abbott gives a careful study of one of the pathogenic spirilla present in American surface waters, which in the event of an outbreak of cholera might give rise to confusion and error from their likeness to the cholera spirillum. He has also studied the effect of acute alcoholic intoxication on the power of resistance of rabbits to various organisms. The resistance to staphylococcus aureus is but slightly diminished, that to bacillus coli communis to a greater extent, while alcoholized rabbits infected with the streptococcus of erysipelas showed powers of resistance much below the normal, an observation very much in line with that of clinical experience with regard to alcoholics. Drs Adler and Meltzer, in their studies on absorption, find that solutions of drugs like strychnine are removed from the peritoneum by the lymphatics, and that these seem to be generally the path of absorption. Strychnine is absorbed best in the rabbit by the pharynx, then by the rectum, and then by the small intestine, while it is not absorbed at all by the stomach so long as the pylorus is kept closed. Prussic acid is at once absorbed from the stomach.

There are other papers on the production of diphtheria antitoxin by the passage of electricity through cultures; on the presence of antitoxin in the blood of uninjected horses; on the way in which systematic exercise favours the growth of American naval cadets; and on the organisms which cause death by intercurrent infection in patients suffering from chronic cardiac, renal, and hepatic diseases.

A Manual for Hospital Nurses and others engaged in attending on the Sick. By EDWARD J. DOMVILLE, L.R.C.P. Lond., M.R.C.S. Eng., etc., Lecturer and Examiner to the St John's Ambulance Association. Eighth Edition. London: J. & A. Churchill: 1896.

WHEN a work is in its eighth edition, it is generally fairly independent of reviewers and all their evil words. This book is written by a practical surgeon in a pleasant simple style, and contains a large amount of most valuable information for hospital nurses.

Where all or nearly all is so good, criticism may seem unkind. Still there are some points that might be altered with advantage, wet hink, in subsequent editions. Under points for observation by a nurse, some are included which really belong in hospital to the province of the clinical-clerk or house-surgeon, or in private practice to the surgeon himself—and it is a puzzle how a short note on Cheyne-Stokes respiration has got into this section. The division on Accidents and Emergencies is quite excellent, brief yet full, indicating practical experience in every sentence. Surely in the chapter on Operations some old instructions have been left and mixed up with new material. Sponges at operations still remain. In two contiguous pages, the parts are directed to be shaved to save annoyance to the patient by his strapping sticking to the hair. What about antiseptic preparations? must not the hair be removed as a routine preliminary. Then why has the nurse to count the ligatures at an amputation, or collect their ends and fix them to a corner of the wound by strips of sticking plaster? It makes one rub one's eyes, and try to remember the pre-historic days. In treatment of hernia, too, surely it must be a relic from the first edition to read "that the surgeon first tries the taxis—that is to say, he tries to reduce it by manipulation; if he is unsuccessful, the patient is put into a hot bath or under chloroform and trial again made; if failure again result, there is no hope of relief being given without recourse to a cutting operation"! (p. 66). In the 19th line of p. 86, an unnecessary comma makes nonsense, and on p. 87 we are told the normal temperature of the body is 98½°.

Sickroom cookery and a glossary are useful appendices to this unpretending work.

Wright's Improved Visiting Lists for 1897. Bristol: John Wright & Co.

No general practitioner or consultant could wish a more convenient, complete, or better got up visiting list than *Wright's.* Three forms are published,—the weekly, the interleaved for 1897 which enables a month's record to be kept, and the interleaved perpetual form. The visiting lists likewise contain much useful information, clearly and concisely put. The volumes should keep up their well-deserved popularity.

Part Third.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

Cancer of the Stomach Treated by Röntgen Rays.—Despeigues (*Lyon Médical*, July 29), having under his care a case of rapidly-growing tumour in the situation of the stomach, tried the effect of directing Röntgen rays on it. Commencing on July 4, the patient had two sittings a day, each for half an hour, and improved very markedly. The tumour, which previously was as large as the head of an eight-months' fœtus, diminished in size. The author is encouraged to continue the treatment, and will give a further account of the progress of the case. The *rationale* of the treatment is that cancer being presumably a parasitic affection, it might be modified by the Röntgen rays in the same manner that tubercle has been shown to be by Lortet.—*British Medical Journal*, Aug. 29, 1896.

The Efficacy of Anti-diphtheria Serum given by the Mouth.—De Minices (*Gazz. degl. Osped*, July 19, 1896), being sent for to a case of diphtheria in a child, and on arrival, finding his hypodermic syringe out of order, determined to try the effect of anti-diphtheria serum when given by the mouth. The result was eminently satisfactory. Since that time the author has had an opportunity of treating four other cases in a similar manner. In each case the effect was quite as good as if the serum had been given hypodermically, and no evil results followed; no gastric disturbance, no skin eruption, and no joint or renal affection. Before deciding as to the dose required, the author thinks further experience desirable. In the five cases the dose given was the same as would have been given hypodermically. The serum was administered in iced milk or pure (it has no unpleasant taste).—*British Medical Journal*, Aug. 13, 1896.

Serum Treatment of Lupus.—Tessile (*Rif. Med.*, July 29, 1896) reports two cases of tuberculous lupus successfully treated with Maragliano's serum. In the first case the lupus affected the right leg and foot. Twenty milligrammes of tuberculin induced well-marked general and local reaction. Maragliano's serum was then injected in alternate daily doses of 1 and 5 c. cm.; 107 c. cm. were injected in all. In the last fifteen days, in addition to the injections, the affected part was painted daily with 3 c. cm. of the serum. Ultimately complete cure was obtained. Similar results were obtained in the second case of old-standing lupus of the hand, but here only 25 c. cm. were injected, the greater part of the treatment consisting in painting the part with serum and covering with gauze impregnated with serum. The patient said that his hand had never been so well for the last eight years.—*British Medical Journal*, Aug. 29, 1896.

SERUM-THERAPY OF PHTHISIS.—Casarini (*Rassegna di Sc. Med.*, 1896) reports four cases of phthisis in which injections of Maragliano's serum were given every other day. After treatment, the moist sounds disappeared in one case and were much diminished in another; they were never present in the other two cases. Increase of weight occurred in all four. No change in temperature (which was apyretic at the outset) was noticed. With regard to bacilli, in two cases they quite disappeared, in one they diminished, and in the third they were never found at all. All the patients felt strong and better, and had increased appetite. No deleterious results were observed from the action of the serum.—*British Medical Journal*, Aug. 8, 1896.

METABOLISM IN THYROID TREATMENT.—Irsai, Vas, and Gara (*Deut. med. Woch.*, July 9, 1896) refer to the recorded researches into this subject. Their investigations have been carried out on three patients, aged respectively 19, 24, and 27 years, with thyroid enlargement. The body-weight was first ascertained. The same diet was given during the thyroid treatment as before it. The amount of nitrogen in the tabloids (Burroughs, Wellcome, & Co.) was also estimated. The treatment was commenced when nitrogenous equilibrium was established. Details of the cases are given in tables of the analyses appended. The following conclusions are drawn:—(1.) The goitre diminished in size in all the cases; (2), the body-weight decreased 1 kilo. in one case, and 2 kilos. in the other two cases,—the diminution in weight depended on the duration of the treatment; (3), the amount of urine was increased; (4), the nitrogenous excretion appeared to be increased, chiefly through the urine; (5), the increase in nitrogenous excretion caused a negative nitrogenous balance of 5·46, 5·2, and 4·34 respectively; (6), the uric acid excretion was increased in two of the cases examined; (7), the excretion of solid chloride and phosphoric acid was increased. The considerable increase in phosphoric acid metabolism, as mentioned by Roos, was, however, not confirmed, but only the phosphoric acid in the urine, and not in the fæces, was estimated in the above cases.—*British Medical Journal*, August 15, 1896.

EUCASIN.—Cohn (*Centralbl. f. inn. Med.*, July 11, 1896) observes that eucasin dissolves readily in both cold and hot water. It is an acid ammonia salt of casein. The author has mixed it with oatmeal and ground rice, after these latter have been cooked with water. These preparations have a pleasant taste, and are willingly taken two or three times a day. The author has not known eucasin to produce any digestive disturbance. He refers to cases of tuberculosis which he has treated with eucasin and gauzecetin with good results.—*British Medical Journal*, August 8, 1896.

PAPAIN IN GASTRIC DISEASE.—Grote, of Riegel's clinic (*Deut. med. Woch.*, July 23, 1896), has examined the gastric contents, motility of the stomach, etc., in a number of cases of gastric disease, of which he gives short notes. The papain was given for long periods of time, in doses of 0·5 to 1 g. after meals. In two out of three cases of acute dyspepsia there was but little alteration in the motility, gastric secretion, or condition of the ingesta; but in the remaining case the functions of the stomach showed improvement. In all cases, however, the subjective symptoms rapidly disappeared, but the washing out of the stomach, rest in bed, and dieting may have contributed to this result. In three cases of ulcer the papain treatment had to be discontinued on account of the increase of the pain. In two of these cases no qualitative or quantitative change was noted in the ingesta, but an active secretion of gastric juice was produced in the third case. In two cases of motor insufficiency with hypersecretion, a further increase in the gastric secretion was noted. It was thought that spasm of the pylorus caused a delay in the expulsion of the gastric contents into the intestine. The results of the examination in four cases of nervous dyspepsia seemed to show that the improvement was due to suggestion. In one of two cases of gastric carcinoma an improvement was noted, but papain here appears also to exercise an irritant action. In two cases of secondary dyspepsia, the one due to mitral disease, the other to cholelithiasis, a decided improvement was noted in the first case. The author, in conclusion, warns against the use of papain in ulcerative processes and in hyperacidity; in other cases of sub- or anacidity the drug may be legitimately tried.—*British Medical Journal*, Aug. 22, 1896.

ABSORPTION OF FLUID FROM THE RECTUM.—Witte (*Deut. med. Woch.*, July 16, 1896) draws attention to the value of saline and other injections into the rectum, especially in gynæcological practice. Dührssen pointed out the value of the subcutaneous injection of saline fluid in cases of internal bleeding before the hæmorrhage could be arrested by operation. The author thinks that absorption from the subcutaneous tissue is often slow. Intravenous injection has also its drawbacks, and injection of saline fluid directly into the abdominal cavity has been experimentally shown to require time to produce an appreciable rise in blood-pressure. To illustrate the rapid absorption of fluid by the rectum the author refers to a recorded case of rapid poisoning when a solution of carbolic acid was injected into the rectum, as well as to the occasional rapid disappearance of fluid used in enemata. He quotes a case of his own in which the injection of warm milk and water into the rectum was of great value in a case of ruptured tubal gestation previous to a successful abdominal section. The author has since used these rectal injections in cases of abdominal section with the best results, and he recommends the injection of saline solution into the rectum in preference to injection into the subcutaneous tissue.—*British Medical Journal*, 22nd August 1896.

EUCALYPTUS GLOBULUS IN STRYCHNINE POISONING.—Moufrida Musmeci (*Giorn. Med. del R. Eserc.*, April 1896), in studying the action of eucalyptus globulus, found that a decoction of the leaves and a solution of a salt of strychnine formed a flocculent precipitate of a clear colour, while there remained above a solution of a citron-yellow tint, the strychnine at the same time losing completely its characteristic bitter taste. On this account the author raised the question as to whether the strychnine lost its topic action, and if in consequence eucalyptus could be used as an antidote. For this purpose he carried out a series of experiments on frogs, rabbits, and dogs, to ascertain, first, what symptoms would be produced by giving these two drugs together; secondly, what antidotal power eucalyptus would exert on being administered after the development of the symptoms of strychnine poisoning. The author found that a solution of nitrate of strychnine, 1 per cent., when injected with a Pravay syringe, would kill a frog in eight to ten minutes after a dose of 0·001 gr., while a dog was killed in thirty-nine minutes by a dose of 0·001 gr. per kilo. of its weight. After a decoction of eucalyptus was administered at the same time, the animal survived the same dose used for the control experiment, and even became tolerant of a dose equal to 1½ m. per kilo. In other experiments the eucalyptus was administered after convulsions had appeared, and then these became much less marked, and even disappeared. From these experiments the author believes that eucalyptus has a true antidotal action in strychnine poisoning, and recommends that practical application should be made of it by using a decoction for washing out the stomach in such cases. —*British Medical Journal*, Aug. 29, 1896.

A NEW MYDRIATIC.—Cattaneo (*La clin. Moderna*, June 1896) draws attention to a new mydriatic which acts more quickly than those hitherto used, has no effect on accommodation, gives rise to little or no irritation, and has only a short action. Mydriasis commences after eight seconds, reaches its maximum in thirty seconds (which it maintains for half an hour), and ceases in from four to six hours. Mydrin, which is the name of the drug in question, is a white powder easily soluble in water, and is a mixture of ephedrin and homatropin in the proportion of 100 to 1. The drug is used in 10 per cent. solution, and gives rise to slight burning and conjunctival injection when instilled into the conjunctival sac; this sensation, however, soon passes off. As compared with other mydriatics, mydrin gave quicker and less lasting results, and in the author's opinion it is an ideal mydriatic for diagnostic purposes.—*British Medical Journal*, Aug. 22, 1896.

ICHTHYOL IN OPHTHALMIC PRACTICE.—Germani (*Gazz. degli Osped.*, June 20, 1896) finds that a 10–15 per cent. ointment of ichthyol in lanolin is very efficacious in ciliary blepharitis, curing when the ordinary yellow ointment has failed. Collyria of 1–3 per cent. are also very useful in phlyctenular conjunctivitis and simple catarrhal ophthalmia. The drug was well borne, soon eased the pain in the eye, and accelerated the cure. The author has also made successful trial of formol as an ophthalmic antiseptic solution. The drug is used in solution of 1–2000, and the conjunctiva was found sterile twenty-four hours after its use. It was found useful in the treatment of phlyctenular conjunctivitis.—*British Medical Journal*, August 22, 1896.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P. Ed., Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

CALCIUM CHLORIDE IN THE TREATMENT OF URTICARIA.—Wright holds that in all conditions of diminished blood-coagulability there is, besides a tendency to actual hæmorrhage, one also to increased transudation of the fluids of the blood into the tissues. He has produced urticaria in himself recently by diminishing his blood-coagulability by taking inordinate doses of calcium chloride. He also, when a boy, often developed urticaria after eating acid fruits, which diminish the blood-coagulability by abstracting lime salts from the blood. Hence he has employed calcium chloride in the treatment of joint effusions in hæmophilic patients. He relates two cases of urticaria which appear to have received benefit from this remedy. One was in a man, aged 84, who had suffered from urticaria due to no discoverable cause for six weeks. The blood-coagulation time was 4 minutes 25 seconds before the administration of the calcium chloride. Under 30-grain doses the time was reduced to 2 minutes 30 seconds. The medicine was continued from January 26 till February 18, when he had recovered. In another case, where the blood-coagulation time was 8 minutes, and was reduced in twelve days to 2 minutes 45 seconds, the rash similarly disappeared. In this instance it had developed after the injection of diphtheria antitoxin. Wright remarks that large doses of calcium chloride may be administered at the outset, in order to supply the deficiency of lime in the system, and to bring the patient rapidly under the influence of the drug. Afterwards it will be wise to reduce the doses, so that excessive quantities of lime shall not accumulate in the system. Lime salts may prove useful in urticaria, even when not associated with any notable defect of blood-coagulability. If confirmed, they may prove of value in other irritable eruptions, perhaps in weeping eczema. The old patient recovered considerable vigour under the treatment, hence Wright thinks calcium chloride may be advantageous to the heart muscle. —*British Journal of Dermatology*, March 1896.

ICHTHYOL-TRAUMATICINE IN THE ABORTIVE TREATMENT OF ERYSIPELAS.—Juhel Renoy and Bolognesi claim that in about 60 per cent. the action is really abortive. Three parts of ichthyol are dissolved in ten of traumaticine, producing a dark brown liquid, which can be applied with a brush, and is not markedly disagreeable. The limits should be exceeded by three-quarters of an inch. If the ears are unaffected, they should be surrounded by a thick coat of the liquid.—Abstract in *British Journal of Dermatology*, Jan. 1896.

ACUTE PEMPHIGUS.—Pernet and Bullock have investigated not a form of acute bullous eruption which affects butchers more particularly, though it may arise in those handling animals or animal products, not butchers by profession. Besides one case carefully observed by themselves, they have collected a series of others scattered throughout literature. The butchers were young adults, but some of the others were middle-aged persons. In most there was a distinct history of a wound, by which the poisonous material probably entered the system. Nothing unusual was commonly observed before the eruption made its appearance; the constitutional disturbance was proportionate. There was always some fever. Albumen was present in the urine in some instances. The period of incubation they believe to be long. The eruption consisted of vesicles or bullæ, which rapidly became general. The palms and soles were, however, respected. Large surfaces became denuded, and the fœtor was horrible. The buccal cavity, the eyes, and nostrils were sometimes implicated. Hæmorrhagic lesions were occasionally observed. Though recovery took place, the disease was fatal in a great number of the recorded cases. A micro-organism was found in Pernet and Bullock's case, which appears to have been identical with that described previously by Demme and by Claessen, and more recently by Whipham and Wells. It is a diplococcus which is neither the staphylococcus nor the streptococcus, and was pathogenic to guinea-pigs. At the same time they cannot assert with certainty that this is the cause of acute pemphigus.—*British Journal of Dermatology*, May and June 1896.

THE PATHOLOGY OF ITCHING, AND ITS TREATMENT BY LARGE DOSES OF CALCIUM CHLORIDE.—Savill points out that itching or tingling is a symptom of irritation of the peripheral nerve endings in the skin, or of the nerve fibrils. The sensation is transmitted along an afferent trunk to the brain, where it becomes a perception. In favour of its being, in some cases, the nerve ending which is affected rather than the nerve fibril, is the fact that ulcers which do not itch in the granulation stage commence to do so as soon as the new epidermis begins to form over its surface at the edges. Pruritus may be primary, when no eruption is present, or secondary, when the itching accompanies or succeeds some manifest eruption on the skin. The nerve fibres are not liable to be irritated so as to occasion itching by slowly-growing, indolent skin lesions. Primary pruritus is met with in jaundice and diabetes, in that so frequently attacking the aged, or after the subcutaneous injection of morphia in large doses, or that which follows the ingestion of unwholesome food. It is characterised by having a tendency to be more or less general, or, at any rate diffuse, and liable to shift its position. The pathological explanation of primary is not so simple as of secondary itching. It can hardly be a neuritis, else we would more frequently have symptoms referable to peripheral neuritis. Some regard it as induced by an abnormal dryness of the skin, but though this exists in some instances, it is not universal. Savill supposes some blood change as being more in keeping with the facts. Besides some conditions already alluded to, he cites the nervous pruritus which Mrs Garrett Anderson has referred to as frequent in those who lead sedentary lives, in whom there is a sensitive nervous system and impurity of the blood from deficient oxygenation. The drugs which have hitherto been found most efficacious in pruritus are such as have either a sedative effect on the nerves or else a direct action on the blood. This led him to try large doses of calcium chloride, which Wright has shown increases the coagulability of the blood. The exact blood change in pruritus, if such exists, has not yet been determined. The dose must be considerable, not less than 20 grains three times a day, and should be gradually increased; 30 and even 40 grains have succeeded where less have failed. Given after meals in a wineglass of water it little disturbs the stomach. If it occasion thirst, the salt taste is covered by the addition of a drachm of tincture of orange-peel in an ounce of chloroform water. The diet should be regulated,—no beer, sugar, or sweets being allowed, and but little meat. Though improvement is generally noted after the first dose, complete recovery is sometimes not obtained till the blood becomes saturated. The dose should be gradually reduced, and the remedy ought to be continued from one to three weeks after all symptoms have disappeared.—*The Lancet*, 1st August 1896.

THE PRESENCE OF AN OIDIUM IN THE TISSUES OF A CASE OF PSEUDO-LUPUS VULGARIS.—Gilchrist and Stokes have given careful details of a remarkable case under the care of Halsted. The patient was a man of thirty-three, of spare build. In 1885 a pimple, the size of a grain of wheat, began behind the left ear; it was roundish and little raised. From this an eruption spread in a linear direction towards the lobe of the ear. As it extended it partially healed, leaving in parts an atrophic and thin scar. Other lesions of a similar nature appeared on the back of the left hand, the scrotum, and thigh. Some healed spontaneously. In 1896 the disease on the face presents a distinct line of demarcation. There is a border consisting of a comparatively thin, inflammatory, red ulceration, which is superficial, and covered with a scanty scab. In places, however, as above the right eyebrow, it has a firm papillomatous appearance; on squeezing, a little pus exudes. The right border, which extends to the ear and almost to the angle of the mouth, is markedly papillomatous, dry, and scabby. It is nearly an inch broad, has some superficial ulceration under the scab, and pus can be made to exude. The included area consists of one continuous atrophic scar, whiter and thinner than normal skin. The disease is not particularly painful. There are no enlarged glands, and no history of syphilis, although his wife had a four months' miscarriage, but no children. The appearances did not simulate lupus papillomatosus, and no lupus nodules were found. There were clinically points of resemblance to tuberculosis verrucosa cutis, but the authors exclude tuberculosis of the skin in any form. The main reasons assigned for this are that the hands, forearms, and feet are the only regions where tuberculosis verrucosa cutis has been found, and its healing spontaneously in three situations. This perhaps in the present state of our knowledge is hardly sufficient. Scrofuloderma was excluded from there being no enlarged glands, and from the absence of other signs. Microscopically, while no tubercle bacilli were discovered, there were in miliary abscesses in the epidermis as well as among the granulation cells in the corium, numbers of doubly contoured, refractive, round and ovoid bodies, varying in size from 10 μ to 20 μ in diameter. These were sometimes single, at others in groups. The development of the organism was observed by means of hanging drop cultures. From the round or oval bodies long mycelia grew. Inoculations into animals were negative. An injection of a pure culture into the jugular vein of a dog gave rise to nodules consisting of areas of coagulation necrosis, which contained numerous round, highly refractive bodies, with double contoured membrane and clear protoplasm. The development of mycelium and distal and lateral cells or conidia, and the failure of the organism to cause alcoholic fermentation, led to the classification of the parasite as an oidium, and the authors conclude that this extensive cutaneous disease is due to its presence and growth in the tissues. So far as is known, this is the only example in literature of a pure cutaneous disease which has been shown to be caused by a species of oidium; and it is the third example where lesions of the human skin have been produced by organisms allied to the yeast fungi, Busse's and

Gilchrist's cases being the other two.—*Bulletin of the Johns Hopkins Hospital, Baltimore*, July 1896.

TUBERCULAR AFFECTIONS OF THE SKIN IN AUSTRALIA.—Finch Noyes in a well-written paper remarks on the infrequency with which lupus and allied tubercular disease of the skin are encountered in Australia. He holds that certain pathological states are due to the direct influence of the tubercle bacillus. Others occur in individuals with that peculiar vulnerability of tissue which favours the development of the bacillus, but which, so far as is at present known, are not due to the direct influence of that organism. To the first belong lupus vulgaris, scrofuloderma, verruca necrogenica, acute tubercular ulceration, tubercular lymphangitis. To the second, erythema induratum, lichen scrofulosorum, acne scrofulosorum, tubercular eczema. Of these, among three thousand cases, he has only observed lupus vulgaris eleven times, scrofuloderma twice, verruca necrogenica thrice—one case in an ordinary labourer—and erythema induratum twice. He accounts for the infrequency of lupus vulgaris in Australia by—1. The greater exposure of its inhabitants to direct sunlight. 2. The absence of tendency to hyperæmia and stagnation in exposed parts due to the effect of cold. This is probably the element which accounts for the greater activity of lupus during the cold winter months in England and Europe. 3. Increased tissue resistance. It is true that lupus is no respecter of persons so far as the rich and poor are concerned, but it is also true that it assumes a much more severe type amongst the poor half-starved, ill-nourished individuals so common in the larger cities of Europe and so rare in the cities of Australia. —*Intercolonial Medical Journal of Australia*, April 20, 1896.

PERSISTENT CIRCUMSCRIBED ECZEMATIFORM ERUPTION AFFECTING THE NOSE, OF MALARIAL ORIGIN.—Brocq relates a peculiar instance of this nature. Mde. X., 40, gouty, but of good constitution, whom he had treated for a troublesome eczema of the hands, came to him in 1894 for a strange ailment of the nose. On the left side of the tip, in front of the nostril, there was a small irregularly-shaped patch, oval on the whole, half an inch in height, and three-quarters long. The base was red, slightly tumified, and on its surface were seven or eight fairly large vesico-papules, yellowish-grey, and oozing a little. The sensations produced were rather those of tension and burning than itching. Each day there were two accessions of irritation, one more severe than the other; these succeeded one another with great regularity. It turned out on inquiry that though she had never had regular attacks of intermittent fever, yet she had various imperfect symptoms of paludism, and she lived for several months yearly in a malarious district. She was cured by quinine and arsenic after the failure of other remedies.—*Ann. de Dermat. et de Syph., Paris*, January 1896.

PERISCOPE OF OBSTETRICS AND GYNÆCOLOGY.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E.

Version or High Forceps.—Dr Heinrich Schultz takes up the question of turning *versus* the high forceps in cases in which the head does not pass the brim. The head may be fixed in the inlet, or its maximum circumference be within the inlet but still capable of being pushed up, or the head may lie above the brim and be freely movable. The competitive operations in the first instance are high forceps and perforation; and in the second and third instances, turning, high forceps, and perforation. The statistics of a number of cases are given, and Schultz draws the following conclusions:—Instead of prophylactic version he prefers the expectant treatment; and with the membranes unruptured, or immediately after the escape of the waters, turning should be performed if an immediate cause for the termination of labour appear to be indicated. When the waters have long escaped, then high forceps, instead of turning, should always be undertaken; but when in such a case the cervix is not sufficiently dilated, and indications for the immediate ending of labour arise, the dilatation should be aided by incisions or by Barnes' bags. The high forceps may be employed without difficulty and with effect when the cervix is sufficiently dilated and the pelvis moderately contracted. In pelvic contractions of a grave degree, the application of the high forceps must be looked upon only as an attempt to be abandoned after the first failure, and perforation of the head to take its place. The high forceps require no such great dexterity as version in order that the result may turn out equally well for mother and child. Their application truly requires dexterity, but no more than any other obstetrical operation.—*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xxxiv., Heft 2, July 1896.

Ventrofixation for Primary Uterine Prolapse, followed by Pregnancy.—Lindfors, of Upsala, records the case of a woman, 30 years old, married for a year and a half without becoming pregnant, who had for sixteen years suffered from a primary uterine prolapse which she had acquired as a young unmenstruating girl during harvest work. Five years previously she had been operated upon by colpoperineorrhaphy without permanent result. She was a small anæmic woman, and showed prolapse of the uterus with vaginal inversion and hypertrophic induration of the cervix. The os uteri was so small as to be scarcely recognisable save when menstruation was going on. The menses were painful and scanty. Ventrofixation of the uterus and annexa by a modification of Leopold's method was recommended and carried out, and thereafter perineorrhaphy by Lawson Tait's method was performed. The operation was performed in April 1895; recovery was complete, and in February 1896 the patient was found to be six months pregnant. There had been some trouble in emptying the bladder during the last week. Labour came on in April (one year after the ventrofixation), and the cervix required to be incised, but the infants (twins) were easily extracted by forceps. There was some dangerous bleeding from the cervical incisions, but the puerperium was normal. The infants, two females, were alive, and each weighed about 2000 grammes. The ventrofixation, then, had proved no obstacle to delivery, and had cured both the prolapse and the sterility.—*Centralblatt für Gynäkologie*, No. 24, June 13, 1896.

THE INFLUENCE OF UNILATERAL CASTRATION ON THE ORIGIN OF THE SEX OF THE FŒTUS.—During the last few years an attempt has been made by Seligson to re-establish the Hippocratic doctrine of the origin of the sexes. Strictly speaking, Seligson's theory is not the same as that of Hippocrates, for the Father of Medicine did not say that male fœtuses came from the right ovary and female from the left, but that males lay on the right side and females on the left. With regard to Seligson's view that the right ovary supplies male ova, and the left female, A. Goenner has made experimental investigations on rabbits which tend to disprove it. A female rabbit castrated on the left side was put to a male rabbit similarly treated, and the result was two young ones, one male and the other female. A similar pair of rabbits had four young ones, two males and two females. Again, a female rabbit castrated on the right side was brought to a male rabbit also castrated on the right side, and the result was four males and one female. Goenner, therefore, points out that whatever may have been the case with the Russian rabbits experimented on by Seligson, the Basel animals did not give results at all supporting his theories, quite the reverse. He thinks that possibly mistakes may have been made with the recognition of the sexes, as it is often difficult in the early stages of development to ascertain clearly the rabbit's sex. Goenner waited till they were two months old before ascertaining the sex finally, but Seligson does not say when he examined the animals from which he draws his conclusions.—*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xxxiv., Heft 2, 1896.

TWO CASES OF PUERPERAL FEVER TREATED WITH MARMOREK'S SERUM: RECOVERY.—In a communication made to the *Société anatomo-clinique de Lille*, Dr Butin reports two cases of puerperal fever treated by serotherapy. The first was one of grave puerperal infection in a woman who had in a previous pregnancy aborted by reason of hæmorrhagic endometritis; two days after labour at the full term she had a rigor and became delirious, with suppression of the lochia, etc. She was treated by a midwife (intra-uterine injections, etc.) till the eleventh day post-partum, when Dr Butin was called in. Two days later she was no better, and 20 cubic cms. of antistreptococcic serum were injected. False membrane removed from the cervix was found by Calmette to contain streptococci. On four other occasions the serum was injected to the total amount of 90 cubic cms., and after several relapses, the patient was pronounced convalescent about a month after the confinement. It is impossible to say whether the good result was due to the serum or not, for local treatment (intra-uterine douches and iodoform bougies) was continued throughout the illness; but after each injection of the serum the temperature fell from 1° to 2° C. during the following twenty-four hours. In the second case the serum was given at the beginning of the fever, and nearly cut it short. The temperature fell, and the general condition rapidly improved. In this instance, also, the local treatment was continued without any bad results. In the first case the injections caused slight erythema and arthralgia, in the second they produced no trouble, local or general.—*Journal des sciences médicales de Lille*, No. 35, Aug. 29, 1896.

Cerebral Embolism during Labour.—Dr Novelli has seen a rare case of this kind. The patient had had her first pregnancy in 1891, and it had terminated normally. Towards the middle of December 1893 she became pregnant for the second time, and the gestation went on normally. There was a slight escape of the waters on two occasions at the end of the seventh month. On the 260th day (August 28) labour pains came on, and the patient, instead of resting, as she had been advised, went herself to fetch the midwife. Labour had commenced and was going on, but before the patient could get to bed she lost consciousness, and fell down in an apoplectic fit, followed by convulsive movements of all parts of the body, but especially of the left side. The midwife thought it was a case of eclampsia, and sent for a medical man, who found the woman paralysed on the left side and aphasic. Dr Novelli terminated the labour at once by means of forceps, and extracted a slightly asphyxiated female infant, which was easily resuscitated. The recovery from the labour was good, and a month afterwards the paralysis began slowly to disappear, whilst speech began to return. Twenty months later the recovery was complete, with the exception of the memory, which was not quite good. Novelli attempts to connect the cerebral embolism with the intra-uterine separation of a placental lobe early in labour, as indicated by the escape of some black-coloured blood from the vagina just before the incidence of the fit.—*Archivio di ostetricia e ginecologia*, June and July 1896.

The Fever of Pregnancy.—It has long been noted that in some women one meets with a febrile state which exists in and ceases with pregnancy; this is regarded by certain writers as a pregnancy fever. Dr Duvernet reports a case of this kind, and concludes that a febrile affection proper to pregnancy appears to be undoubted. It has to be distinguished from post-partum puerperal fever, from which it differs clinically, by the progress and the gravity of its symptoms. The two forms (acute and chronic) which the pregnancy-fever may take, have not possibly the same pathogenesis; if the first bears a great resemblance to a septicæmia, the second may be regarded without doubt as a reflex manifestation of the nervous system. However it may be, local antisepsis is necessary from the first appearance of a febrile state ascribable to pregnancy. The symptomatic indications may be variable; quinine has often appeared to be an advantageous palliative. In cases where the gravity of the case requires it, the induction of premature labour would have to be considered, for when it occurs spontaneously it is followed by cure. If the infant were viable, both it and the mother might thus be saved, and if the fœtus were too young, it might still be necessary to do so to save the mother. This, at any rate, was the line of treatment followed by Duvernet in his case, for premature labour was artificially brought on at the sixth month, with the result that the mother was saved, but the fœtus lived only a few hours.—*Archives de gynécol. et de tocol.*, xxiii., July 1896.

OCCASIONAL PERISCOPE OF THE DISEASES OF CHILDREN.

By John Thomson, M.D., F.R.C.P. Ed., Extra Physician to the Royal Hospital for Sick Children; Lecturer on Diseases of Children, School of Medicine, Edinburgh.

Value of Carbolic Acid in some Catarrhal Diseases of Children.—Dr S. H. Dessau strongly recommends the internal administration of carbolic acid in cases of a mild irregular type of influenza. Finding that cases of this kind did not recover so rapidly as he expected under the ordinary sudorific and expectorant treatment, he tried carbolic acid; and after an experience of 300 cases, he pronounces it very efficacious. In the cases referred to there was a dry cough, worse at night, with signs of slight bronchial catarrh, alternating sometimes after chills with coryza and diarrhœa. The annoying cough was often relieved in two or three days, always within a week. The dose given was a teaspoonful of a 1 per cent. sol. for a child of 5 years old, and it was administered every two hours until decided improvement was noticed, and afterwards at longer intervals. Only in one case did nephritis occur, and Dr Dessau was inclined to attribute it to the influenza and not to the carbolic acid.—*New York Medical Record*, Sept. 12, 1896.

Influence of Thyroid Products on Growth.—Dr E. Hertoghe of Antwerp has observed the results of thyroid treatment in eight cases of sporadic cretinism. In all of these, although the patients varied in age from 6 to 27 years, there was a marked gain in height. This fact led him to try the effect of the same treatment in children and youths who, although not cretins, were backward in growth. In six of these cases, in which he attributed the arrest of growth either to chronic albuminuria (2), rickets (2), masturbation (1), or congenital debility (1), there was a recommencement of growth,—in some it was very considerable. In a later series of cases, where the dwarfing appeared to be connected with an enormous excess of urea in the urine, he also obtained very remarkable results. It is often said that a child is getting thin *because* he is growing fast. Dr Hertoghe thinks that the leanness is not the result of the growth, but that both are to be attributed to the same cause, namely, an exaggerated activity of the thyroid gland.—*Bulletin de l'Académie royale de médecine de Belgique*, 1895.

LUMBAR PUNCTURE OF THE SUBARACHNOID SPACE.—Tapping the vertebral canal in the lumbar region for purposes of diagnosis and for the relief of intracranial pressure in meningitis and other cerebral conditions, was introduced by Quincke more than twenty years ago. It has been made use of so largely of late that it may now be considered to have found a place among the recognised methods of diagnosis and treatment of nervous disease, although it is still regarded with great distrust by many competent authorities. At a meeting of the American Pediatric Society which was held in Montreal this summer, Drs Caillé, Wentworth, and Jennings read papers on this subject, and there was some discussion. The operation consists in passing a hypodermic needle into the subarachnoid space, usually between the 3rd and 4th lumbar vertebræ. It is very easily done, and, if thorough antiseptic precautions are observed, seems to be accompanied by little danger. Death has, however, occurred in a few cases, notably in some where there was either cerebral tumour or uræmia present. As a means of cure, or even of alleviation, the procedure has proved very disappointing; generally the symptoms are little if at all improved after it even when large quantities of fluid are withdrawn. For diagnostic purposes, however, it may be of some value, as many inferences may be drawn from the character of the fluid removed. According to Dr Wentworth, cerebro-spinal fluid in health is perfectly clear, containing neither cells nor fibrin. In cases of meningitis, however, it is *invariably* cloudy, when drawn off, from the presence in it of cells—the degree of this being to some extent proportionate to the amount and character of the meningeal exudation. Fibrin is present in it also. In most cases of tubercular meningitis the fluid may be found to contain bacilli on microscopical examination, and probably the inoculation of guinea-pigs with it would always settle the diagnosis in doubtful cases.—*Archives of Pediatrics*, Aug. 1896.

QUARTERLY PERISCOPE OF OPHTHALMOLOGY.

By GEORGE A. BERRY, M.B.

INTERSTITIAL KERATITIS.—E. v. Hippel has made a very exhaustive study of this disease in all its clinical aspects. The material at his command was that met with at the Heidelberg Ophthalmic Institution during a number of years. He draws comparisons between the results of his own observations and the conclusions at which numerous other writers on the subject have arrived. The special point of general interest is the question as to how far interstitial keratitis is of syphilitic origin. In this country the connexion has been looked upon as so intimate that most believe, with Mr Jonathan Hutchinson, that interstitial keratitis in its typical form is always the result of, and suffices of itself to establish the diagnosis, hereditary syphilis. The following are the more important of v. Hippel's conclusions:—Clinical anatomical and experimental facts point to the keratitis even when it is clinically a primary manifestation, being either a symptom of an existing or a consequence of a previous morbid process in the uveal tract. What may be called clinically primary interstitial keratitis appears to have no uniform etiology. Hereditary syphilis is the most important and most frequent cause; local conditions may, however, influence the proportion in which this cause preponderates. Against the exclusive importance of syphilis may be mentioned:—

α. The absence of other indications of hereditary or acquired syphilis in 30 per cent. to 50 per cent. of the cases.

β. The occurrence of interstitial keratitis in animals.

γ. The anatomical demonstration that the condition may sometimes depend upon a tubercular infection of the eye.

δ. The fact that diseases of the uveal tract may be due to various causes.

ε. Individuals who have never acquired syphilis may suffer in advanced life from interstitial keratitis.

Hutchinson's teeth do not appear to occur in the majority of cases; their presence points to the probable, though not the certain, existence of hereditary syphilis. A co-existing deafness can only be looked upon as indication of hereditary syphilis when due to a (usually acute and unfavourable) disturbance of hearing, associated with subjective symptoms but unaccompanied by any visible changes, or to an ear suppuration occurring (mostly in very small children) with complete absence of any subjective symptoms. Ear suppuration alone is of no diagnostic importance, owing to the frequency of tubercular middle-ear inflammation. Co-existing joint affections may or may not be syphilitic. The presence in many cases of interstitial keratitis of tubercular conditions in other parts of the body is, in the absence of symptoms of hereditary syphilis elsewhere, suggestive of the condition of the cornea being due to a tubercular infection, the course of which is relatively mild. It cannot, however, be said what proportion of cases have a tubercular origin. Rheumatism and malaria appear to be of etiological importance in a number of cases. Hutchinson's dictum cannot hold good, because really definite clinical differences between typical and atypical interstitial keratitis do not exist, thus:—

a. Synechiæ, diffuse opacity, and the occurrence of the keratitis in both eyes, are equally frequent in the probably tubercular as in the probably syphilitic forms.

β. The characteristic remnants of bloodvessels in the cornea which are so frequent, though not constant, in the syphilitic keratitis, are also met with where the cause is probably tubercular.

γ. The same holds good for the choroido-retinal changes met with in the equatorial region of the fundus.

δ. Masses in the iris, the angle of the anterior chamber, and the cornea, though more frequent in the tubercular, are also met with in undoubtedly syphilitic cases. Of course it must be remembered that the hereditary syphilitic eye may also be affected with tubercle.

Recurrences of interstitial keratitis are not uncommon (in 17 per cent. of v. Hippel's cases). As to treatment, little can be done locally. It is difficult to estimate properly the effect of treatment, owing to the great differences in severity, as well as to the fact that in most cases recovery takes place without any treatment. No treatment can prevent the second eye becoming affected. Where syphilis can be demonstrated, an anti-syphilitic treatment is indicated whether the keratitis is influenced thereby or not. Sub-conjunctival injections have no special local influence. In certain cases in which there is no indication of syphilis, salicylate of soda appears to do good. The experience, so far, of paracentesis of the anterior chamber is insufficient to prove that it has any therapeutic value. Iridectomy is of no value except where there are the well-recognised indications for its performance. In certain cases where the process is confined to a small peripheral portion of the cornea it may sometimes be checked by the excision of the adjacent sub-conjunctival tissue.—*Græfe's Archiv,* xlii. 2.

THE PHYSIOLOGICAL SIZE OF THE PUPIL.—Some time ago Professor Schirmer of Greifswald showed that the size of the pupil was not dependent only upon the degree of illumination (leaving out of consideration, accommodation, and convergence, psychical and sensory stimuli, etc.), but that a factor neglected hitherto in measurements of the pupil had to be allowed for, viz., the state of adaptation of the retina, or rather the relation between that state and the illumination at the time of examination. He found if the retina were given time to adapt itself, say a quarter of an hour, then the size of the pupil remained the same within such wide limits of illumination as equalled 100 to 1100 meter candles. Schirmer proposed to call the size of the pupil under these conditions of adaptation and illumination, the physiological size, and to make it the basis for any comparative measurements. Silberkuhl has since made an extensive series of such measurements, and has come to the following conclusions:—1. The physiological size of the pupil varies according to age from $2\frac{3}{4}$ mm. to $4\frac{3}{4}$ mm. in diameter. 2. Its average diameter in young people up to 20 years is 4·1 mm.; in people over 50, 3 mm. From 20 to 50 the size is pretty generally something between 3·6 mm. and 3·1 mm. 3. There is no essential difference in the size of the pupil in different conditions of the refraction at the same size. 4. Pigmentation has probably no effect on the size of the pupil. 5. The pupil diameter is generally increased by from a quarter to three-quarters mm. by closure of the other eye.—*Græfe's Archiv*, xlii. 3.

OCCASIONAL MEDICAL PERISCOPE.

By A. LOCKHART GILLESPIE, M.D., F.R.C.P. Ed., Medical Registrar of the Royal Infirmary, Edinburgh; Lecturer on Materia Medica.

URIC ACID AND ALLIED BODIES.—Futcher, in an original paper in the *Centralblatt für Innere Medicin* for September 26, discusses the relationship between the so-called perinuclear basophile leucocytes and the excretion of alloxuric bodies (uric acid and alloxuric bases) in the urine. Neusser has gone so far as to say that granules, which can be detected by Ehrlich's stain in most leucocytes round the nucleus and which he looks on as depositions from nucleo-albumin, are the source of the uric acid excreted in the urine. Kolisch is of opinion that the quantity of uric acid in urine varies directly with the number of the granules. Futcher has attempted to substantiate these statements in a series of most careful observations on several patients suffering from different diseases, but all on a fixed diet sufficient to keep up the nitrogen balance. In a healthy but stout man the granules in the leucocytes were rather below the average, while the uric acid was normal. After getting Carlsbad Water for a day or two the granules increased while the alloxuric bodies in the urine decreased. In another healthy but younger man the uric acid was above normal before taking the same water, and increased during the course, while the granules were not more numerous than usual at first and became distinctly fewer afterwards. A patient with acute rheumatism passed less uric acid the greater the number of granules, as did a woman with the same disease. In a case of phthisis both the granules and the uric acid were much increased, and also in a patient with cirrhosis of the liver. These results negative both Neusser's and Kolisch's theories, and the source of the nuclein which supplies the alloxuric bodies cannot be said to exist in these granules. Zuelzer (*Berliner klin. Wochenschrift*, 4, 1896) disproves another of Kolisch's theories that in nephritis the proportion of uric acid to the other alloxuric bodies is greatly lessened.

In the *Dublin Medical Journal* for last June M. A. Boyd publishes a paper on "Defective Metabolism in its Relation to Gout," in which he makes out a strong case for the old view that gout is but an indication of insufficient metabolism. The conclusion he arrives at is largely negative. The gouty person "is a susceptible individual whose general metabolism is easily upset," but to which "vice of nutrition" the upset may be due in different cases it is almost impossible to say. He lays much stress on the fact that treatment with alkalies or salicylates does not affect the primary cause to which our remedies should be directed.

EXCESSIVE INTESTINAL PUTREFACTION.—Bartley (*Brooklyn Medical Journal*, Aug. 1896) points out that there are two forms of intestinal fermentation produced by micro-organisms, the one of the carbohydrates, the other of the proteids present in the gut, and that they are mutually antagonistic to one another. The fermentation of carbo-hydrates leads to the evolution of gases, and to the formation of organic acids. The gases cause discomfort and the acids interfere with pancreatic digestion, but the products formed are not very poisonous nor irritating. On the other hand the fermentation of proteid bodies caused by bacteria results in the formation of gases of more varied character, though in some cases no gas may be evolved, and in the production of many derivatives of a poisonous and dangerous action. The fæces are most offensive. In acute cases there are febrile symptoms; in chronic, depression, and nervous affections. In practice the tests for the ethereal sulphates in the urine are too complicated, but the ordinary colour tests for indoxyl and skatol often afford valuable information. As to treatment, that by antiseptics is often disappointing; of them calomel is the best; a milk diet, with cheese or without, is the surest method of diminishing the fermentation. Salol and sodium salicylate do not act very well. Resorcin, given along with castor oil or magnesia, is frequently very effective. Irrigation of the colon is often of benefit, especially in the case of children. Gilbert et Dominici (*Compt. rend. de la Soc. de Biol.*, 1895, No. 37), by giving a healthy man 15 grammes of sodium and magnesium sulphates, found that they could reduce the number of bacteria in the fæces very markedly. The salts were given before breakfast, and the number of bacteria in the fæces rose from the 67,000 per milligramme of the day before to 272,000 per milligramme. The stool of the day after contained only 55,000, and of the second day following the dose 1350 bacteria in each milligramme. The purgative had, therefore, acted rapidly in bringing down the number of organisms in the fæces from 67,000 to 1350 per milligramme.

PERISCOPE OF SYPHILIS AND GENITO-URINARY DISEASES.

By Francis Cadell, F.R.C.S. Ed.

Age and Volupty in Women.—A widow, 70 years of age, and twenty years past the climacteric, who had experienced two apoplectic seizures, recently married, and, having been advised to avoid any excitement for fear of the return of "strokes," wished to know whether sexual indulgence was contra-indicated. She declared her sexual sense, her passion and her gratification was as great, if not greater, than before the menopause.—H. C. Bloom, in *University Medical Magazine.*

Intra-uterine Infection of Syphilis.—In the *Boston Medical and Surgical Journal*, July 23, 1896, Dr Adner Post publishes three interesting cases.

Case 1. The previous good health of the wife was known. The primary sores were seen at the seventh month of the mother's pregnancy. The secondary eruption occurred at about the average time for the appearance, and was in full bloom at the time of delivery, two months later. The child was born apparently healthy; but perfectly characteristic eruption with accompanying snuffles showed itself at the end of a week, a period so short as to show that the child was born with the disease; he could not have acquired it. The father accused his wife of having given him the disease when she first showed her local lesions, but afterwards confessed that he had caught the disease outside marital relations and transmitted it to his wife. At her next pregnancy she was delivered of a six or seven months' fœtus, which was macerated. The premature labour and macerated fœtus in the second pregnancy are worthy of note. The first child became syphilitic about the seventh month of intra-uterine life, and though severely affected, lived: the second was syphilitic *ab initio*, both its parents being syphilitic at the time of conception, and was so profoundly affected that it died before completing the period of intra-uterine existence. The first child is still alive, is reported as healthy.

Case 2. A baby, second child, five months old, had a general roseola and ulcerated papules about the anus. The first child was a healthy girl of four. There had been no miscarriage between. The mother also presented certain signs of syphilis. In this case the father acknowledged that he had gone astray during his wife's pregnancy, and had contracted a chancre which he had given to his wife about the fifth month. In this case also the confession of the father is necessary to establish the exact trouble, and it falls short of scientific proof.

Case 3. Mrs X. had two healthy children. When about three months advanced in her third pregnancy she had gonorrhœa and a sore which in due time was followed by constitutional syphilis. The baby was born at full term with signs of syphilis. The evidence as to the father is a little less direct, but it rests upon the following:—1. The wife's infection. 2. The wife saw him applying various remedies. 3. His refusal to be examined. 4. The testimony of his physician, who told the story to the wife's doctor and begged him to shield the husband. As a result Mrs X. obtained a divorce, but the question of infection was not submitted to the judge. We have, then, three cases in which the syphilis of the child is thought to be due to an inoculation of the mother during the course of the pregnancy—in each case by the father, who acquired the disease after the conception had taken place, the confession of the father being the ground of diagnosis in the first two cases, the story of the inoculation by the father's doctor (with confirmatory evidence) being the ground of such belief in the third case. Each one of these cases alone falls short, to my mind, of absolute scientific proof; but they are cumulative. They are known to me so well that I am personally convinced of their truth. In addition to these cases there are others which cannot be advanced as proof under the requirements laid down, because of our ignorance of the father. Such a case is the following, which occurred at the lying-in hospital, where they do not intend to take syphilitics. A young girl was admitted in apparent health. The day after delivery she broke out with a papular syphilide. I saw her a day or two later, when careful examination revealed a sore on the vulva which I believed to be a primary lesion. The girl admitted intercourse with a man, not the father of the child, two months previous. The baby broke out very soon after birth with a syphilide. I saw it several times. It was under the care of an old coloured woman, in the worst possible conditions, and finally died, as much from neglect as from disease. The mother continued to show signs of syphilis for over a year. These cases seem to me to possess value beyond that obvious at first glance. The whole subject of syphilitic heredity is a difficult one. Our knowledge is incomplete. If we can settle the matters involved in the condition of the placenta we can have so much clear ground beneath our feet and have advanced a long way toward understanding the whole question. I have made no attempt to get together the evidence already existing on this subject. It seemed to me of more value to present these cases just as they stand, to weigh what they may, but particularly with the hope that they may be instrumental in bringing about uniformity in our belief on the subject, and that they will induce more careful observation of the syphilis, which is just as rich in cases for study in this country as in those countries to which we are accustomed to look for instruction. It seems to me that such a statement as the following expresses our knowledge and its limitations, and might be accepted by all the authors whose statements I have quoted. 1. It is universally admitted that there is normally no direct communication between the maternal and fœtal blood. 2. There is proof, however, that certain contagious diseases are conveyed to the fœtus *in utero*. 3. In some of these cases it is shown that hæmorrhages have destroyed the original structure of the placenta and opened a path of communication. 4. It is then no longer possible to say that intra-uterine infection is impossible in syphilis. 5. Clinical observation shows that intra-uterine infection does take place in syphilis. 6. Whether such infection is invariable or what its limitations are we do not know.

Part Fourth.

MEDICAL NEWS.

MEDICATED SOAPS; POWDERED SOAPS IN BOTTLES; MEDICATED BATH POWDERS.—Since Unna introduced the new soap treatment of skin diseases, whereby various more or less active ingredients are incorporated with alkaline or superfatted soaps, and thus brought into immediate, if somewhat transient, contact with the integument, several manufacturers have directed their attention to preparing such. Among these Mr Charles Midgley of Manchester has distinguished himself, not only by the diversity of the soaps he has provided, but also by having inaugurated some new departures. He has favoured us with some selected specimens for trial. Of these, we have had submitted to us a sulphur soap cake containing ten per cent. of precipitated sulphur, and another containing in addition five per cent. of white birch tar. These are made with a superfatted base of hard soap, but others of a nearly similar composition can be had with an alkaline one. These ought to prove specially useful in seborrhœic dermatitis, and in mild cases of scabies or in tinea vesicolor. A soap with two and a half per cent. of menthol has been found of much value in pruritic conditions, particularly in urticaria. A naphthol and sulphur soap is indicated in scabies and prurigo. In some circumstances soap in the form of dry powder is useful. This is a means of preserving some of the more sensitive drugs from chemical decomposition more perfectly than in soap cakes. Of these, a sulphur, camphor, and balsam of Peru soap has a reputation in acne. A resorcin and salicylic soap powder, and another in which there is also sulphur, will be found convenient for employment, sprinkled on wet flannel, to wash the skin in cases where it is desirable to promote rapid exfoliation of the horny layer of the epidermis, as in ichthyosis or in the desquamative stage of scarlet fever. Mr Midgley has likewise introduced emolient and medicated bath powders. These consist of a gluten-containing substance enclosed in a porous bag of muslin. This is dipped into hot water, well stirred round, and then removed, and the water added to a bath. Thus no sawdust or palpable powder remains in the bath, and one bag is said to serve on more than one occasion. A delightful and refreshing bath is thus provided. With others, sulphur, birch tar, or resorcin are incorporated, imparting a stimulant or remedial character to the water. It is in such way possible to obtain at home much of the virtue ascribed to foreign spas, at little expense.

DR B. SCHEUBE, Kioto, thinking that rice is better utilised in the intestines in Japan than in those of Europeans, surmised that the length of the Japanese intestine is longer than a European. Prof. Taguchi, at Tokio, has measured the intestines of twenty-five corpses, ages between 17 and 60, and it was found that, making due allowance for height, the Japanese intestine is one-half longer than that of the European.—*The Sei-i-Kwai Medical Journal*, January 1896.

PROF. HANKIN has used Calmette's Snakebite serum successfully in India.—*Indian Medical Gazette.*

THE Japan Government intends to stop, as far as possible, the use of opium in Formosa. Dr Kozo Kagano, writing to the *Sei-i-Kwai Medical Journal*, proves that the idea that opium is a prophylactic to malaria is of quite recent origin.

DR W. E. RITTER has an article well worth reading on "The part played by the inferior animals in lifting man out of savagery," in the June number of the *Pacific Medical Journal.* He shows that "it is difficult to see how man's ancestor could, in the first place, have become even a savage; and in the second place, having become a savage, could have advanced to any considerable extent in civilisation, had it not been for the dumb beasts."

DR P. C. REMONDINO advocates the silent carbonic oxide cell in place of hanging. The victim would simply pass from life to eternity in the most unconscious manner.—*Pacific Medical Journal*, June.

OBITUARY.

KENNETH M'LEAN, M.B.C.M.,

Resident Surgeon in Edinburgh Royal Infirmary.

DR KENNETH M'LEAN, whose sudden and early death, while residing in the Royal Infirmary, has thrown a sad gloom over the hospital, was the youngest son of the late Rev. Daniel M'Lean of Lanark. He was educated at the High School of Edinburgh, and graduated at the Edinburgh University last year (1895). He was diligent as a student, took a good place in his classes, and passed well in the M.B.C.M. examinations. After graduating, he was Clinical Assistant to Mr C. W. Cathcart for six months, and then was appointed to be Resident Surgeon with Mr A. G. Miller in the Royal Infirmary. During the session 1894–95 he held the honourable posts of Secretary and then President in the Royal Medical Society.

Dr M'Lean entered upon his duties as Resident Surgeon in the Edinburgh Royal Infirmary in the beginning of April 1896. These duties he discharged with great faithfulness, his kindly, gentle manners making him a favourite with all. He never looked strong, but seemed to endure well enough the hard work which all Residents have to perform in the Edinburgh Royal Infirmary. He was slightly ill once or twice, and was allowed a short holiday in the end of August. He returned to work with apparent vigour in the beginning of September, but soon after—on the 9th—was taken ill, and died on the 18th, of uræmia, the cause of which was supposed to be septic. During his brief illness, which was most mysterious, no cause being distinctly traceable, he was assiduously and affectionately attended by several of the physicians and surgeons of the hospital. On the day of his funeral a special service was conducted in the chapel of the Edinburgh Royal Infirmary by Dr Mair of Morningside U.P. Church, which was attended by a large number of the medical and surgical officers, general staff, residents, and nurses of the Infirmary.

PUBLICATIONS RECEIVED.

An American Text-Book of Applied Therapeutics, for the use of Practitioners and Students. Edited by Prof. J. C. Wilson, M.D., and Prof. A. A. Eshner, M.D. The Rebman Publishing Co., London, 1896.

Annual Report on the Health of the City of Sheffield for the year 1895. By Harvey Littlejohn, M.A., M.B., B.Sc. Pub. Health.

A. H. Feeland Barbour, M.A., B.Sc., M.D., etc.,—The Anatomy of Labour, exhibited in Frozen Sections reproduced *ad naturam*. Third Edition. W. & A. K. Johnston, Edin. and Lond., 1896.

Florence A. Haig-Brown,—Hints on Elementary Physiology. J. & A. Churchill, Lond., 1896.

J. Jackson Clarke, M.B., F.R.C.S.,—Post-mortem Examination in Medico-Legal and Ordinary Cases. Longmans, Green, & Co., London, 1896.

Edward J. Domville, L.R.C.P. Lond., etc.,—A Manual for Hospital Nurses. Eighth Edition. J. & A. Churchill, Lond., 1896.

First Annual Message of Charles F. Warwick, Mayor of Philadelphia, with Annual Reports of A. M. Beitler, and of the Board of Health, issued by the City of Philadelphia. Dunlop Printing Co., Philadelphia, 1896.

Guide to South Africa. Edited annually by A. S. Brown and G. G. Brown for the Castle Mail Packets Co., Ld. 1896-97 Edition. Sampson Low, Marston, & Co., Ltd., 1896.

Thomas J. Henry, F.R.C.S.E.,—Claude Garton: A Story of Dunburgh University. E. & S. Livingstone, Edin., 1896.

Florence B. Jack,—The Art of Cooking for Invalids in the Home and the Hospital. T. C. & E. C. Jack, Edin., 1896.

Paul Mahlendorff,—Voice Production P. Dabiero, London, W.

Report of the Humane Society of the Commonwealth of Massachusetts, 1895 an 1896. Boston, 1896.

Prof. D. B. St John Roosa, M.D., LLD.,—A Clinical Manual of Diseases of the Eye. Wm. Wood & Co., New York, 1894.

Sixty-Ninth Annual Report of James Murray's Royal Asylum, Perth, 1896.

Transactions of the Clinical Society of London. Vol. 29. Longmans, Green, & Co., London, 1896.

Charles West, M.D.,—The Profession of Medicine: Its Study and Practice, its Duties and Rewards. Kegan Paul, Trench, Trübner, & Co., Ltd., London, 1896.

Charles Williams, F.R.C.S.E.,—The Barbour-Surgeons of Norwich. 1896.

Wright's Improved Physicians', Surgeons', and Consultants' Visiting Lists and Journal. Compiled by Robert Simpson. Forms A, B, and C. John Wright & Co., Bristol.

Part First.

ORIGINAL COMMUNICATIONS.

I.—THE SURGICAL TREATMENT OF DISEASES OF THE VERMIFORM APPENDIX.[1]

By J. A. Macdougall, M.D., Cannes, France; formerly Surgeon to the Cumberland Infirmary.

More than eight years ago it was my privilege to discuss with the members of the Carlisle Medical Society "The Relationship between Ulceration of the Vermiform Appendix and Perityphlitis,"[2] and to say something of surgical treatment in connexion with this; and when, in remembrance of the past, for which I am grateful, some of them desired that I should take part in these proceedings, it occurred to me that the old subject, still a problem, and thus of necessity attracting our attention in now widely separated fields of action, might profitably yield itself to fresh examination. It is with a view to a possible solution of this difficulty that I endeavour to introduce the discussion to-day, for, much as has been done and written in connexion with the subject in the course of these vanished years, it remains, so far as English medicine and surgery is concerned, a somewhat unsettled one, and one that stands in pressing need of settlement. And before going further, I wish to express the opinion that in discussing the surgical treatment of diseases of the vermiform appendix we may well confine ourselves to the consideration of its inflammatory or acute conditions, for although other lesions there are associated with certain specific disease, they, as a rule, do not present those forms around which the doubts and the difficulties of the practitioner range themselves. Ulcers dependent upon the presence of tubercle, of the action of the typhoid bacillus, and of the infiltration of malignant disease, may all exist within or in close proximity to the appendix, and may, by perforation, give rise to the very train of symptoms of which we will speak, but they usually have, in their earlier days at least, a clinical association and a type of their own, and one with which we are not immediately concerned. Actinomycosis, by the symptoms it gives rise to when occurring in this especial region, may, in the matter of diagnosis also, demand consideration; but it is so rare a condition that the making mention of it may suffice as regards my present purpose.

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[1] A Paper read in opening a discussion on this subject at the Carlisle meeting of the British Medical Association, July 1896.

[2] *Lancet*, 1888, vol. ii.

It has been well said that, before discussing the diseases of an organ and their treatment, it is necessary that its anatomical situation and its physiological action should be thoroughly known. But in this instance we may almost pass them by, for the situation and the surroundings of the appendix must be very familiar to you all, and its action in the economy seems to be of comparatively small importance. One point it is necessary to remember, that as the organ varies in length and in the directions in which it points, it may give rise to inflammatory phenomena in various situations; and therefore, in all acute inflammatory affections of the abdomen not otherwise readily explained, it is ever well to bear in mind these possible anatomical irregularities in the situation of the appendix. Time will not permit of my entering into much detail regarding the etiology and the pathology of the lesions of the appendix, but it is impossible to pass them by, inasmuch as dependent largely upon their nature has the question of early surgical interference been based. Of the predisposing causes, the anatomical situation, the dependent position, the vestiginal nature, and the peculiarities in the circulation of the appendix, I only make mention; and as regards its exciting causes, they may well be classed as catarrhal, ulcerative, and infective. The possibility of their arising in a proportion of cases in mechanical causes cannot, however, be overlooked, for from the nature and the influence of its mesenteric attachments it is very likely that this dependent and often mobile organ may be more or less strangulated through interference with its circulation. One would, however, incline to think that this was most likely to occur at the particular age at which the organ was of greatest length, and therefore most likely to undergo torsion.

Traumatism plays also a definite rôle in its production, but that neither of these two conditions are frequent causes I gather from the fact that in the returns which the medical officers have kindly sent me of three public schools, numbering in all 1200 boys, and these at the very age in which the disease is the most frequent, I find there was in one instance (Rugby) "not one case a year during the last twenty-five years." In another (Charterhouse), "roughly, one case in two years," that is less than seven cases in fifteen years; and that in the third (John Watson's) there has not been a case for at least five years. Moreover, the whole series was void of fatality, and of abscess formation. Surely if twist of the appendix, often ascribed to muscular exertion, was a common cause of, or did traumatism often produce harm in this organ, these records would in all probability have been very different.

That there exists a catarrhal appendicitis is most probable, if we call to remembrance the pathological conditions with which we are familiar as occurring in the mucous surface of the intestinal canal; and if we reason by analogy from that of the lining membrane of other tubal organs. But it happens here in an environment which tends to the production of more notable and more permanent harm than when it occurs elsewhere. The congestion and the turgidity of the mucous membrane which marks it is attended by increased action in its secreting glands, the orifice by which this secretion should escape is blocked by the very process which produces it, and as both are enclosed in unyielding muscular walls, capable by reflex action of considerable contractile power, it is not difficult to understand how its delicate lining structure should readily perish. Once this has taken place its regeneration is an uncertain matter, and it remains that in many cases where it is only partially reproduced that stricture or occlusion of the lumen may follow, and that at other times granulation tissue may take the place of what is in reality a vitally protective covering. What may be a simple inflammatory catarrh may thus leave in its train dangerous possibilities. The relationship of the ulcerative form with the presence of stercoral concretions and foreign bodies has been well established, and the observations of Fitz, of Matterstock, and of Kraft demonstrate the gravity of the lesions which may arise in connexion with it. The concretion may act in a variety of ways, but the experiments of Roux of Lausanne[1] tend to show that it is not in themselves that they are dangerous, but in the changed vital conditions which are so apt to occur in their surroundings. That they may cause by their presence, it may be mechanically, much suffering, the results of not a few operations have shown.

Attaching to the infective form is perhaps the greatest interest when we recognise that it may occur independently of the presence of a stercolith, of a foreign body, of severe ulceration, or of acute catarrh, that it may produce at times with little vital sign gangrene of the appendix, that it may give rise to an intense septic peritonitis without visible perforative lesions of the parietal wall, and that it is a common cause of acute general peritonitis, we can realise how insidious may be its origin and how widespread and how evil its results. In the facts that the appendix is a body possessing a vulnerability peculiarly its own, that ulcers appear here probably more often than in any other part of the intestinal tract and tend to perforation, and that gangrenous ulcers at its base are one of its commonest lesions, there exists evidence of a predisposition and a liability to infective harm; but that the infective lesions themselves are due to bacteria and their products there can be no doubt, for it is possible to demonstrate in such cases their presence in the walls of the appendix, where they are not seen in ordinary conditions; and to find in the fluids of serous and purulent appendicular peritonitis the bacillus coli communis in proof that it has the power of invading and traversing its tissues. Why this should occur at one time and not at another—for the condition predisposing to the invasion may be long-standing—is difficult of explanation, but doubtless bacteria vary in virulence under different conditions, as do the resisting powers of the tissues with which they are in contact. The experiments of Ekehorn[1] demonstrate that the bacillus coli communis obtained from mild forms of appendicular disease is much less virulent than that from acute severe cases, and show that there must therefore exist such states as enable the organism to become at times more virulent and to act with increased vigour. In the amount of inflammatory tension in the walls of the appendix (and I incline to ascribe much to this), in the chemical composition of the contents of its lumen, and in the resisting power of the individual may lie some of these, and dependent probably upon the virulence of the bacterial-laden material, of the chemical nature of the fluids with which it is mixed, and of the freedom with which it escapes into the peritoneal cavity will be the character of the peritonitis produced. Other explanations have been given of the origin of these infective conditions, but Dr Hawkins,[2] to whose very able work I am largely indebted for my knowledge of this part of the subject, has failed in the examination of his specimens to find evidence of that thrombosis and endarteritis to which others have ascribed the necrotic changes.

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[1] *Transactions of the French Congress of Surgeons*, 1894.

This is maybe a useful way in which to consider the causes of appendicitis, but it is at best an ill-determined one; for of the pathology of this condition there is very much yet to learn, and although it is difficult to believe that in a malady in which 75 per cent. recover there can always be an infective element, the gradation from simplicity to gravity is so unbroken that we may yet find in the at present dominant germ theory there lies the basis of all attacks.

Curtly as we may have dealt with this first part of the subject, its symptomatology demands the most careful consideration; for although it be true that there is at times a deceptive absence of relation between the symptoms and the physical signs and the lesions which underlies them, and that some hold "that there is no group of symptoms for prognosis, and that we must abandon every such classification of symptoms for a guide," this is not the case in the great majority of instances; for with ordinary care the condition can usually be readily recognised, and on its recognition and a thoughtful consideration of the symptoms which mark it, will rest its successful treatment. Pain is, as a rule, the earliest indication of inflammation of the appendix, and to its character a certain degree of importance attaches. In acute gangrenous appendicitis it is usually of an intense character; in perforative cases its onset is equally impressive; and in those where acute torsion of the appendix has taken place, it is of high severity. But it may be very severe at the outset of a safe case (appendicular colic), and it may even, when its severity is lasting, be found in association with no grave lesion in the walls of the appendix. Its slightness may be most deceptive at the beginning of an attack, and in every case it must be considered in its relation with other physical indications. When it first appears it may be generalised, it may be referred to the epigastrium or even the left iliac fossa, for only in one half of all cases is it at once complained of in the right side. Following quickly upon the pain, and holding a higher prognostic value, is tenderness. This, like its predecessor, may be more or less generalised; but if the safe rule is followed that in every case of abdominal pain, not otherwise satisfactorily explained, pressure be made over M'Burney's point, the seat of its greatest intensity would be discovered. The evidence this yields will be more readily demonstrated if the pressure is made with the finger tip and the patient is desired to cough while this is carried out. At times the painful area may be found an inch or so nearer the pubes, and its discovery is always helpful. Apart from this localised tenderness, which may be in existence from the beginning of the case, and may in mild forms be the only indication present, we find it affecting a wider area when the peritoneum surrounding the diseased process becomes involved; and in this connexion it is well to bear in mind that as the situation of the apex of the appendix varies, it is possible to have intense sensitiveness due to its diseased condition located in the hypogastrium, or even well to the left of the middle line. To note early and observe often its character and its limitations is important, for its intensity is of prognostic value and its extension is significant of progressive harm.

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[1] Upsala Läkere Förh, 1892-3.

[2] *Diseases of the Vermiform Appendix*, pp. 22-74.

While investigating this sign, the muscular rigidity of the abdominal wall, its hardness, its flatness, or its distension will attract attention. In all pronounced cases, we find muscular rigidity more or less developed in the right iliac fossa, and a hard, board-like, and absolutely silent belly on auscultation is notable in some instances of gangrene, or of sudden perforation. Tympanitis may be decided early in the case, when this is only of moderate severity, but its rapid increase is of much value in prognosis. Vomiting in acute cases generally begins early, and in proportion to its severity and its continuance may we in a measure judge the gravity of the attack. Where peritonitis is quickly established it becomes a notable feature, and in perforative cases may take on early a feculent form. Associated with this or as representing in a less pronounced way the same provocative condition is nausea, and its persistence and the degree in which it is present deserve consideration. The nature and the rapidity of the pulse demand full and repeated reflection, for they often mark the severity of the attack and its increase in urgency, as they do the constitutional effect produced by it. A quick and a quickening pulse, with little arterial tone, especially if in association with a normal or subnormal temperature, is suggestive of grave harm.

The pulse is certainly a more reliable guide than the temperature, although it is well always to view the one in its relations with the other. A temperature of say 99° to 100°, with a pulse of 140, is strongly suggestive of perforative peritonitis; and although in general septic peritonitis, when the case is first seen, the temperature is often not raised and may be subnormal, yet in many perforative cases where the onset is less fulminating, or where adhesions may form, it tends to increase steadily to 103°, or even higher. Its sudden fall, with a quickening pulse-rate and with aggravation of other symptoms, makes an anxious combination, and an intimation that there is no time to lose. It is, I believe, a sign of higher value when the formation of pus is in question; for if a temperature having been on low lines for the first few days begins to rise steadily; if, after falling as in a safe case it tends to fall to normal about the seventh day, it then again begins to rise; or if, with some days of quiet temperature, it commences to ascend say from the ninth to the twelfth day of the illness, the presence of pus is very probable. The fact, however, that certain acute cases run their course with a steadily maintained high range of temperature and terminate happily by sudden improvement, renders the chart a far from infallible guide. In the course of the most pronounced cases not ushered in by the impressive phenomena attendant upon free perforation or acute necrosis, a tumour makes its appearance in the iliac fossa. It is seldom that it can be clearly defined before the third day, and it may be so placed anatomically, or be of such small dimension that its detection may be difficult. When the other evidences of appendicitis are present, and no tumour can be felt, it is well to examine by the rectum or vagina. Such examination, always of much value in the early days of the illness in children, may at a later date in its march be of equal value in the adult. A sense of doughiness or puffiness may take the place of a well-defined swelling, or a sense of thickening and tumefaction, with resistance on careful examination, may be all that can be detected. And yet any one of these signs is of value, and at times they can only be found with the patient under an anæsthetic; for in a case in which early operation is being considered, the knowledge that a tumour has already formed may perhaps stay our hand; or if detected when symptoms of general peritonitis have made their appearance, may well raise the hope that it may depend upon a localised form of the disease, and the surgical treatment will then undergo important modification. The rapidity with which such a tumour appears and the size it attains must be considered as a probable indication of pus formation; but this is not always so, nor is it a fact that such a tumour, even when well developed, will assuredly be the seat of suppuration. The signs of highest value in the recognition of the formation of pus are—increase in size and in tenderness of the tumour when, after having been for some time definite, it had remained stationary; augmentation of its pressure effects; sudden local pain arising in the course of the attack, with increased hardness in the swelling; œdema of the skin; rigors, and, it may be, sweating. When the pus is deeper seated, and the tangible evidences are less pronounced, the debility, the anorexia, the progressive, it may be rapid, emaciation, and the anæmia, will all point a lesson. Regarding severe rigors in the onset of the illness, and occurring during its early days, I record this experience, that some of the gravest cases I have seen were thus marked.

These are but the general features of the disease,—features which, to be of prognostic value, can best be regarded when placed under certain groups. This may be done in several ways, but may be the best is, following Barling,[1] to regard them from the clinical point of view, and to treat of them under the four divisions of—first, mild or simple appendicitis; second, appendicitis with abscess formation; third, acute perforating appendicitis; and fourth, relapsing appendicitis. The first and by far the most common form of the disease is ushered in in a variety of ways,—always by pain, which may be slight or it may be severe at the onset, this, however, as a rule, steadily diminishing. By tenderness in the iliac fossa, pronounced enough to be easily recognised, and especially if finger-point pressure be made at M'Burney's point; by muscular rigidity, gradually increasing, but limited to the region in which it commenced; by very slight tympany; by a temperature which may for the first two days be high, 102° to 103°, after which it tends to fall gradually; by a pulse not much quickened, and which remains of good tone; by vomiting, which, occurring once or twice, or it may be continuing more or less for the first two days, is not a distressing feature; by a facial aspect which, even when the sufferer is at rest, is natural; and by the gradual formation of a tumour which, recognisable on or after the third day, may disappear quickly, or it may remain tangible for two or three weeks. In this group, and indeed in them all, examination by the rectum should be practised. To me it has at times proved of the highest value, this more especially in the case of children; and the positive evidence which it occasionally gives will amply repay the trouble of its routine practice. Such a case, safe and simple as former experience may lead one to regard it, must ever be observed with watchful suspicion, for under such a guise may appear certain dangerous conditions. To put such a patient at absolute rest in bed—not to permit him to make any muscular exertion that can be avoided—to diet him upon fluids only—to apply leeches to the seat of tenderness—to follow these by the use of an ice-bag every alternate two hours, and to give him opium only when the severity of the pain demands it, and in the smallest dose that will accomplish this—is to place him in the best position for recovery. To give an aperient, saline or any other, is in my thinking, to add additional risk to the case, for by increasing peristalsis they may break down protective adhesions; and as a general peritonitis is not yet in existence, the benefit they produce through intestinal drainage is not obtainable. The use of an enema may sometimes be necessary, and salol or napthaline, as intestinal antiseptics, are of undoubted value, and should always be administered. Under such treatment the case usually does well: the temperature after its first elevation generally falls steadily; the tenderness remains well localised; the pulse, if it be quickened, slows progressively; and the tumour does not increase in size, but it loses its tenderness, and ultimately disappears. In appendicitis with abscess formation the onset, as a rule, is marked by symptoms of greater severity, and this is what one might expect; for no doubt in very many of them the occurrence of a perforation is at their root. More acute pain, more pronounced tenderness, a higher temperature, a quicker pulse, and at times more persistent vomiting, with notable rigidity and limitation of movement in the right iliac fossa, characterises them. The tumour develops more rapidly and with greater suffering to the patient; it is larger in size and is more acutely tender; and these local signs, instead of tending to diminish with the passing days, either remain stationary or undergo increase. The temperature, high from the beginning, remains so, or, having begun on lower lines in the early days, it rises steadily; or may be having declined and remained normal for a time, it again ascends. During this time the local tenderness, greatest over the tumour, may remain limited to the fossa, or it may, having spread over the abdomen, and accompanied by rigidity and tympanitic distension, simulate very closely the condition of a generalised peritonitis. Difficult it is in many such cases to distinguish them from the more simple form of the disease, but in continuance and in increase of symptoms, and in the presence of a tense, painful, well-defined, and highly sensitive mass of rapid formation, such mass, it may be, best distinguishable by pelvic examination, we may diagnose an appendicitis with abscess formation. These facts, however, must not be forgotten, that there may be suppuration without a notable tumour marked by persistent and acute localised tenderness, and by the constitutional conditions found in association with pus formation; and that in many of the hard, plaque-like swellings which arise more often, I think, in association with severe recurrent attacks, there may be, so far as we can discover, no pus formed. Acute perforative appendicitis, provoked by the presence of a concretion or of an infective inflammation, is attended by such pronounced symptoms as cannot be overlooked. The severity in their appearance depends somewhat upon the position the appendix occupies; for they may be those of a rapid, general peritonitis, or of one which, beginning by less pronounced but still most emphatic phenomena, may in the end terminate with all the violence attaching to the first. And such symptoms are most apt to appear in those in the enjoyment of perfect health, for there is a comparative rarity of previous attacks in such cases. The intense pain, the urgent and persistent vomiting, the rising temperature and the greatly quickened pulse, with the tender and board-like or, it may be, the rapidly distending abdomen, distinguish the one; while in the other, where brief symptoms of appendicitis, sharp in their onset and succeeded by a short and deceptive lull, may have led to a false feeling of security, the form of awakening is similarly impressive. These cases are happily comparatively rare, and it is their occurrence and the relation that they bear to diseases of the appendix, that has aroused the wise anxiety and the watchfulness that accompany its every phase. Of the fourth class there are two distinct varieties, the recurrent and the relapsing. In the one the condition of ill-health, beginning in an acute attack, may never completely pass away; the patient may never be well between the seizures, and in the other long intervals of well-being may separate the visitations. The symptoms which attend these attacks are usually those of simple appendicitis, each of which may be of diminishing severity; but they are at times singularly acute, and, although the occurrence is one of great rarity, they occasionally prove fatal. Underlying this severity, it may be provoking it, there at times exists some curative process; for some of the worst attacks it has been my fortune to watch with anxiety, have proved the last in an otherwise long series, and this experience has rendered me very cautious in advising operation during their *acute* phase. Much may be done to prevent the occurrence of this class of the disease; for if after a primary attack of appendicitis the patient be kept in bed and carefully dieted until all evidence of the illness has well disappeared, and if such means are taken as will maintain the general health and lead to the avoidance of the causes we know may produce such seizures, the sufferer may entirely escape further trouble. Even when the tendency has made its appearance, in the employment of rest, in the administration of salol, in the use of counter-irritation and massage, and in the absence of a distinct and persistent local lesion, such patients may get well.

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[1] *On Appendicitis* (the Ingleby Lecture), 1895.

It might be accepted that a disease which gives, even in different degrees, such notable presentations, would not be readily overlooked, and that its recognition would be assured; but this is not what experience teaches, for there are many errors committed in the non-recognition of inflammation of the appendix and in the distinguishing of it from other diseases.

The difficulties attaching to the non-recognition of appendicitis may arise from the insidious character of its symptoms, and this even when the evil is intra-peritoneal. But they are more likely to present this phase when the perforation having taken place by ulceration into the sub-peritoneal cellular tissue the pus finds its way along its planes. Here is an illustration of the one form, and as the sufferer is a very accomplished physician, the record is a valuable one. For a week or so before his illness began his bowels had inclined to be loose, and he had a little flatulence—symptoms of intestinal dyspepsia. On a certain Tuesday he went to bed feeling perfectly well, as he had done all the previous day, but awoke early on the following morning with colicky pain above the umbilicus, which he ascribed to flatulence, and which did not prevent his again falling asleep. He rose to breakfast, but had to return to bed, as the pain reappeared and he had some malaise. Bowels were then moving regularly, and were not loose. These abdominal pains continued for two days with no constitutional disturbance to speak of, for the temperature never rose above 99°. He took a carminative with morphia, had milk diet, and was kept in bed. On the Friday he was seen by an able practitioner, who advised a continuance of the opium and some calomel, and here begins his own tale:—"There were no additional symptoms, indefinite pains in the upper part of the abdomen, temperature hardly up, no tenderness anywhere, very little feeling of ill-health, the bowels moving freely. Gradually the symptoms subsided and the pain abated, chiefly due to the morphia, which, however, had no constipating effect even in very large doses. On Wednesday, one week from the beginning, the temperature began to rise, and there was slight tenderness over the right iliac region. I had been so well the day before, that permission had been given to get up on this day. The temperature rose a degree every day till the Sunday, but I had begun to feel really ill on the Thursday; the abdomen became tender on the Friday, when the temperature was 101°, and then I knew what was the matter with me; before that I had hoped against hope. On Saturday, temperature 102°; felt better in the morning, but became suddenly worse in the afternoon, *i.e.*, septic poisoning. Bowels still open, but I felt very weak, although I was getting nearly half a bottle of brandy a day. Dr A. was telegraphed for, came by night train, saw me on Sunday morning at once, diagnosed abscess over appendix. Was severely ill all Sunday, but conscious. Great deal of flatulence, iliac region very tender and slightly prominent; temperature 103°; operation advised, and surgeon summoned. That night considerable pain, spot very tender, felt really seriously ill for the first time; however, I was told that I looked wonderfully well for such an illness. The symptoms of septic poisoning acute all Sunday night; but pulse slow considering, 82 to 88; temperature fell to 101° during night, rose to 103°·4 before operation next day; pulse 94; respirations 20. Took chloroform well; a large abscess was found in a thick leathery walled sac 2½ oz. of pus; peritoneal cavity not opened; inflammation had spread through peritoneum into muscles; pus very fetid; appendix not found, and not, luckily, looked for. My own feeling is that it was brought on by the bacillus coli communis, whose virulence had been enhanced by a subacute intestinal dyspepsia; some members of this brood having managed to set up inflammation in the appendix, penetrated the wall and caused the abscess. The important point which I cannot fathom is, when did the pus begin to form? The temperature did not rise decidedly until five days before the operation, and 2½ oz. were found. I might call attention to the deceptive break in the course of the disease about the fifth and sixth day, for one might easily do too much and rupture any weak adhesions if pus were already formed. Morphia probably masked my symptoms very greatly."

Had this sufferer not possessed the knowledge he does, and had he gone about as many would have been compelled to do in these early days of his illness, the mischief already in progress within his appendix would have been accentuated, and the first strong evidence might have been the occurrence of a general peritonitis, for I believe that at the time his temperature first rose his appendix was probably surrounded by pus.

The occurrence of suppuration in the sub-peritoneal cellular tissue is at times difficult to recognise. So far, however, as knowledge carries me, there has ever been more or less localised suffering, more or less evidence of abdominal disturbance and the presence of those constitutional conditions which attend upon a septic process. In careful local examination, followed if need be by exploratory incision, some such difficulties will certainly be solved. That certain cases of long-continued fever, apt to be regarded as typhoid, have their origin in an undiscovered, inflammatory focus surrounding an appendix, there is good reason for believing.

In all cases of sudden abdominal pain, be its character what it may, the practitioner should bear in mind that inflammation of the appendix is far the most common inflammatory condition producing symptoms in the abdomen; and as a routine method of examination should test the degree of tenderness at M'Burney's point.

And here one word regarding the existence or non-existence of stercoral typhlitis. That it does exist I have no doubt, for I am certain I have seen it; but it is extremely rare in comparison with the inflammatory affections which arise in connexion with the appendix, and it lacks in its manifestations—except at times in children—their impressiveness and their urgency. The pain is less severe, the tenderness is less marked, the temperature is not so high, vomiting is decidedly uncommon, and there may be found on the first visit a doughy, elongated tumour in the iliac fossa, which may, at times, be traced into the lumbar region. Examination in such a case by the rectum will offer no evidence.

In distinguishing appendicitis from intestinal obstruction there lie the greatest difficulties, not so much, however, at the beginning (and here, again, the lesson is read of the importance of an early diagnosis), as when later, peritonitis having appeared, the conditions presented are identical. In the facts that acute intestinal obstruction occurs usually in young adults, that some of them have suffered previous attacks of abdominal inflammation, and that constipation may precede both conditions, the histories may be alike; but if we regard the raised temperature, the continuous pain, the quickened pulse, the less urgent vomiting, the less absolute constipation, and the hard, board-like and tender belly, we may decide in favour of an inflammatory process.

The peritoneal conditions which arise in connexion with appendicitis may simulate so closely those which follow perforation of a gastric ulcer as to lead the best to error. Here is a case in point:—A young woman, aged 21, was admitted to the medical ward of a London hospital. A fortnight before she had been seized with pain in the abdomen, chiefly in the right iliac fossa. There was no sickness, and the pain soon disappeared. Four days before coming to the hospital the pain had returned with greater severity. There was then much vomiting, but no blood. On admission the girl was evidently very ill; the abdomen was motionless, distended, and tympanitic; the apex of the heart was felt in the third interspace, and the area of liver dulness was much diminished. A diagnosis of gastric perforation having been made, the surgeon opened the abdomen in the middle line above the umbilicus. Some serous fluid escaped, but there was no sign of peritonitis, and the stomach was perfectly healthy. The patient was then too ill to permit of further exploration, but the surgeon expressed his opinion that there was a suspicious sense of resistance in the right iliac fossa, and that he thought a barrier of adhesions could be felt in the cæcal environment. The wound was closed. Pain and distension were less after the operation, and no definite swelling could be felt in the iliac region; but inasmuch as her temperature remained over 101°, the propriety of exploring the appendix was considered. She, however, became rapidly worse and died. At the necropsy a large circumscribed abscess was found in the right iliac fossa, in which lay a perforated appendix. There was no general peritonitis. The remarks of the distinguished surgeon under whose care the case was are well worthy of remembrance:—

"The case very powerfully illustrated the manner in which a local, acute circumscribed abscess from appendix perforation may simulate a general peritonitis from a totally different cause; and again the lesson is enforced that the appendix should never be forgotten in all cases of the kind."[1] From this experience and from many others he has formulated the useful aphorism, "When in doubt, think of the appendix."

It may be impossible at times to distinguish positively between affections of the right broad ligament and its contents and inflammatory diseases of the appendix; but a bimanual examination under anæsthesia will usually clear up the difficulty. I have, however, placed on record[1] a case in which, in association with one of the most famous of Continental surgeons now living, I was quite deceived; for recurrent attacks of supposed appendicitis, marked by the disappearing tumour and all the other symptoms, and believed to be dependent upon tubercular lesion of the appendix, were found on operation to have their origin in a fibroid growth splitting up and forcibly stretching the right broad ligament.

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[1] *Lancet*, March 7, 1894.

Some of the difficulties we have considered are best solved by the employment of an anæsthetic. When under its influence the general rigidity of the abdominal wall is overcome, and when there can be discovered no local swelling, no feeling of thickening, and no sense of resistance in the right iliac fossa, the evidence is much against the appendix being at the root of the symptoms which present themselves.

Thus far our consideration of symptoms has been chiefly from the diagnostic point. Is it possible to find in them guides as to prognosis and to treatment? Experience has taught me that we have; for, with an early diagnosis, with accurate noting of the conditions which exist, with an anxious consideration of their probable meaning, and frequent observation as to their progress, our prognosis and our line of treatment may be well established. The statistics of Toftt and the general experience of the profession prove that in a very large proportion of cases of appendicitis there never arises the consideration of the question of surgical interference. But these mild cases and their progress throw into strong relief the events in others. There is this, however, to be borne in mind, that the severity of the onset may be more apparent than real, that "peritonism"—peritoneal shock—is common to many conditions in which there is severe abdominal pain; and that in the vast majority of the acute cases time is afforded us for careful observation.

Regarding the urgency of the treatment in group 3, there can be no question. Their progress is so emphatic and so rapid, and the downfall of the sufferer so notable, that the attendant is instinctively called upon for help; but in others in which the signals are less distinct, interference is none the less necessary.

Acute torsion of the organ, if I may draw a lesson from one case, presents extreme local tenderness, is attended by severe pain, by vomiting, and by a certain degree of distension, these symptoms being at the end of thirty-six hours unchecked by such measures as carry benefit to a safe case which has begun acutely. Others there are in which with a high and rising temperature, with a quick and quickening pulse, followed, it may be, later, with low temperature, with incessant vomiting or painful retching, with increasing tenderness and distension, and with costal respiration, and in the absence of tumour formation it is certainly best to operate.

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[1] *Edinburgh Hospital Reports*, 1895.

On the other hand, in a case of average severity, if at the end of forty-eight hours there was an absence of sickness and pronounced nausea, there had been movement of the bowels, there was no marked increase in pulse-rate or in loss of its tone, in which the temperature was not much raised, in which the point of tenderness was not strikingly acute, and in which its area and the muscular rigidity of the abdomen were not increasing, where abdominal distension was not notably present, and in which increased resistance and slight dulness pointed to tumour formation, then I would watch and wait events, for I have seen very many such cases get thoroughly well, and the great majority of them have no return of the disease.

For me, a quick thready pulse, repeated vomiting, marked depression, it may be somnolency, severe continued pain, or pain which, while in itself relieved, is associated with recognisable advance in local signs, acute and extending tenderness, with increase in abdominal distension and thoracic respiration, are indications for operation. In children with less emphatic symptoms than these early interference may wisely be undertaken, for the march of the malady in them is often so rapid and so deceptive, while the tendency to peritonitis is so great, that delay may prove sadly disastrous.

That this can be carried out with comparative safety within the first forty-eight hours is proven ; but affairs assume a different aspect when it is demanded between this date and the arrival of the sixth day. Still, when such occurrences as sudden increase in local pain, especially if this be attended by tympany ; as the appearance of a severe rigor, of a precipitate and previously non-existent diarrhœa, or of extension of tenderness beyond the peri-cæcal region show that evil is threatening in connexion with the iliac mass, then we must interfere. And the same rule may well be followed when pus formation is in question. For although it is not usual to have to deal with this before the fifth day, the urgency of symptoms or the interpretation of them may be so clear as to call for surgical aid. Each individual case must be considered on its own merits, and the clinical presentation fully judged, for this and not time, which is no sure index of the advance in pathological processes, must decide our treatment of the case. We must, however, recognise fully the fact, that with the most anxious care we may be sadly deceived, and thus :—

A little lad in perfect health complained one midday of a slight griping pain in his belly. His doctor saw him the same evening ; his pain had then all but gone ; he had a little tenderness over the appendix ; he had a quiet pulse, a temperature of 99°·4, and he had no vomiting. During the night he slept well ; felt easy the following day ; his temperature was still over 99° ; but his pulse was quiet, and he had no local evidence of increasing harm or of abdominal fulness. Early on the following morning, within forty-eight hours of his first complaint, he was suddenly seized with the symptoms of general peritonitis, and on operation within a few hours after there was discovered a partially gangrenous and perforated appendix, surrounded by foul pus. The doctor who first saw him was, I know, an able and accurate observer, one who not only recognised the disease at his first visit, but the possibility that it might call for surgical interference, and yet he was deceived, as most of us would have been deceived, for every guiding symptom was absent.

Again, a man of 27 complained one day of a general feeling of illness. Early next day pain gradually appeared in the right iliac fossa, and he vomited two or three times. On the third day he was admitted into hospital. He had then a slight fever, but pulse and respiration were normal. He did not look anxious. The abdomen was a little distended; the recti were rigid; respiration was entirely thoracic. He lay flat upon his back; he complained of a little abdominal pain, and there was moderate tenderness over the appendix. It was recognised that he had disease of that organ, with subacute peritonitis. Yet within twenty-four hours he was in a hopeless condition, and he died in less than four days after the first onset of the pain. It was found at the post-mortem that there was peritonitis over the greater part of the right side of the abdomen, and that he had a perforation of the tip of the appendix.[1]

The occurrence of such cases calls to remembrance these facts, that in hernial strangulation of the appendix, where the existing conditions are probably somewhat similar to those when gangrene occurs, the symptoms vary somewhat extensively as regards their severity; and that it may be at times impossible to measure the extent of a peritoneal infection by the clinical evidence it presents.

My wish is now to turn to the consideration of the technique of the surgical proceedings necessary in the different stages and conditions attaching to the disease of the appendix, a technique which is, with me, the result of experience and of the teaching of others, and the imperfections in which may serve to call out in discussion better and safer methods. When early operation is determined upon, the proceeding is usually an easy one, but it may be otherwise. After the opening of the abdomen, which can be carried out by an oblique or by a straight incision, the appendix may not be readily reached, and even with no history of previous attacks it may be found to be more or less bound down by adhesions. This, I believe, is not infrequent in children; at all events, my own troubles in this way and at this especial time have been greatest in them. When it is isolated and brought forward, it is best removed by a circular division of its peritoneal coat, the retraction of this, the ligature with fine silk of the mucous canal, its disinfection with a drop or two of carbolic acid, and the stitching of the serous coat over the face of the stump. When this somewhat elaborate but advisable proceeding cannot be carried out, owing to the condition of the peritoneum, the organ may, after its ligature a fourth of an inch from the cæcum, be divided, and the stump cauterized with carbolic acid. The wound may often be closed without drainage, but where there is any trace of sero-purulent fluid or pus it is wiser to drain for some days. This can be done in such a way by the employment of a provisional suture that the risks of hernia will not be great. Operative procedure is different when with a free perforation, or it may be with a rapidly gangrenous appendix, septic or purulent peritonitis is in existence. If this from the clinical history be certain, and if with the patient well under the anæsthetic there can be discovered in the right iliac fossa no evidence of harm, the abdomen will be opened by median incision; but if there be any doubt, and especially if this occur in a male sufferer in adolescent years, it is wiser to make an exploration of the iliac fossa in the first instance. I have already drawn pointed attention to the fact that certain cases which present the features of a general peritonitis have only some local process at work, and if in such a case an opening is made in the central line limited adhesions will be broken down, and death will probably result. In the presence of sero-purulent or purulent fluid, the abdomen should be thoroughly flushed with normal saline solution at a temperature of 110°, either by means of a big irrigator with a full-sized tube attached, or poured into the cavity by means of jugs. If the appendix can be readily removed, this should certainly be done; but the condition of the patient must at times determine this, and if there be great distension of the intestines, it is wisest to evacuate them by incision, for of the benefit attaching to this I can warmly testify. Occasionally it is impossible, owing to the state of the sufferer, to carry all this out. Then, incision under local anæsthesia,—for general anæsthesia in such circumstances is fraught with danger. The evacuation of the pus and the insertion of a large drainage-tube is the best course to follow.

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[1] *Diseases of the Vermiform Appendix*, Hawkins, p. 109.

Around the indications for and the period at which the proceedings we have considered should be carried out, there hangs no doubt; but when the second day having passed, and early adhesions are walling in, or lymph sealing, a highly dangerous lesion, there should arise such symptoms as force interference upon us, we enter upon its performance with anxiety. The conditions are these that, in order to reach and to remove the diseased appendix, we must approach it by opening the general cavity of the peritoneum, and by breaking down delicate adhesions, which have arisen to protect the sac from potent septic influences; and we have the fear that in thus acting we may bring about the event which, by interference, we desire to avoid. The teaching of M'Burney,[1] and no surgeon is more fully qualified to give an opinion, may carry confidence in such a difficulty, but it cannot

[1] *Annals of Surgery*, vol. xiii. p. 247.

abolish anxiety. "An important and encouraging fact that has not been often referred to, is that, although the apparent dangers of causing infection of a non-infected peritoneum in the course of an operation for a diseased appendix is very great, yet in reality experience has shown this not to be the case. In a considerable number of these operations, done at an early period, I have found pus present in considerable quantity. Non-infected portions of peritoneum must necessarily, in the course of such an operation, come in contact with sponges, instruments, and fingers, and yet infection of the general cavity from such a source has not occurred in a single instance." His published records fully sustain this, but my own experience is best expressed in the words of another very distinguished American surgeon, who says, "There is no more difficult operation in surgery than that of removing an appendix in this stage (*i.e.*, from the third to the sixth day) without infecting the general peritoneal cavity." But is the removal of the appendix absolutely necessary? I venture to think not. I have such small experience of operation at this date as renders my opinion of little moment, but it has led me to believe that now, as at a later time, if we can reach and evacuate the pus, we may let the appendix alone. If, on opening the abdomen by an oblique incision over the swelling (for one carried immediately along the edge of the rectus may lie directly above its inner border, and risk opening the general cavity at that point) there should be found such thickening over the inflamed area as will permit of Barling's mode of stitching, with a ring of interrupted sutures, the abscess to the parietal peritoneum, that may be the best line to follow; but as at this early date it is more likely that the swelling presents itself with the massed intestinal coils, and only a thin layer of lymph on their surface, it is safest to pack the whole area between the edges of the incision and the abdominal cavity with iodoform gauze, to turn the patient on his right side, and to search on either edge of the adherent bowel mass if pus be presenting there. If it is not, if, when it seems necessary, pelvic exploration fails to find it, and there be no evidence of a localised collection lying deep behind the cæcum, then the finger directed in the position of the angle between the ileum and the large intestine, possibly the most frequent seat of the pus, separates gently the adhesions, and having once reached the focus, is retained there until, by careful plugging with gauze around it, the route is walled off. The finger is now withdrawn, such pus as may escape is quickly mopped up with a sponge, and a stout drainage-tube inserted. This will remain for some days, but the gauze around the parietal opening should be withdrawn within forty-eight hours, otherwise its presence may give rise to trouble when it is removed.[1] Here the use of a tube appears to me safer than gauze drainage, for should at a later time fæcal extravasation take place, its escape is better provided for. In my thinking, but on this point I much desire expression of opinion, the same rule may apply here that certainly does at a time when the abscess walls are better and more strongly defined; and when to search for and remove an appendix in every case may be poor surgery. By the evacuation of the pus you avert the danger its presence carries, and tide the patient over the existing emergency in the knowledge that after recovery his appendix can, if necessary, be removed with comparative safety. The cases that were thus dealt with were very few in number, two or three in all, but they did well, and it appears to me that many a general practitioner, whose knowledge of such technique as is demanded in carrying the radical procedure to a safe conclusion is defective, may successfully execute this, and deliver his patient from a menacing danger. The larger and equally happy experience of Mr Barling in the management of such cases increases my confidence in this procedure.[1] The pus focus may, on occasion, be dealt with in another way. In a case under the care of two of my French colleagues in Cannes, and in which urgent symptoms, rigors, and high temperature demanded interference, it was discovered, by incision in the semilunar line, that high behind the cæcum, and deep in the abdominal cavity, lay the purulent collection. To empty or drain it with safety through the peritoneum would have been difficult; it was therefore reached by extra-peritoneal incision made an inch within the anterior iliac spine, and with perfect results, as regarded the abscess, and as regards the present existing condition of the abdominal wall.

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[1] For the method of employing gauze packing around the finger, I am indebted to Mr Caird of Edinburgh.

When called upon to deal with a well-localised abscess, say from the eighth to the twelfth day, once it is freely incised, and this often demands the greatest care, and after search has been made for any concretion lying within it, the question arises, How is the appendix to be dealt with? Speaking generally, it is best left alone. If it can be felt, as at times it can, lying loose in the cavity or projecting well from its wall, then it may be taken away with, or without, the application of a ligature to its base. When, however, the appendix is adherent in the walls of a well-defined abscess, it is most unwise to attempt its removal, for in so doing you risk the occurrence of general septic peritonitis by the separation of adhesions and the escape of septic matter into the abdominal cavity; or you may bring about intestinal obstruction by kinking from adhesions taking place in recently separated gut. With the appendix incorporated in the abscess wall, and when, from a perforation of it, feculent matter may be escaping, it is equally advisable to leave it undisturbed. By irrigation, and by the promotion of the healing of the cavity from its bottom by the use of gauze packing, and by the regular movement of the bowels through the use of frequent enemata, few of those fæcal communications but close completely; and, where they do not, they can be remedied by operation at a later date. There is, however, one accident which may call for the breaking-down of peritoneal adhesions, and the incurring of the dangers attaching to this, namely, when intestinal obstruction takes place before or within a limited time of the opening of such a pus collection. Then the safest procedure seems to be to deal with the abscess sac first, by thorough disinfection, and, having made such provision as is possible, to guard the general peritoneal cavity by the use of sponges or gauze; then to endeavour to break down adhesions and to free the gut.

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[1] *Annals of Surgery*, vol. xiii. p. 26.

When medical means have failed, when attacks are occurring with increasing frequency, or are so severe as to imperil life, or the conditions exist which the canons formulated by Mr Treves[1] in reference to this subject so well express, removal of the appendix should be undertaken. The necessity for this will be more fully indicated when an induration tender to the touch, or a palpable tumour, remains after one or more acute attacks, and where a sense of uneasiness is constantly present in the iliac fossa. At times an operation of extreme simplicity, this may, on the other hand, prove to be one of the very greatest difficulty, and the surgeon who enters upon it should be prepared in certain circumstances to leave it unaccomplished. The intimacy of the adhesions and their relations make the difficulty, and as by too determined action life may be imperilled in a way which the risks attendant upon the disease do not justify, the quest may be left more safely unfulfilled. In carrying it out various incisions have been used, and where there is no pus to be evacuated, and no extensive dissection demanded, the short incision of Morris, the criss-cross method of M'Burney, or the indirect plan of Battle, may be employed; but the oblique incision has the advantage of giving more freedom in dealing with difficulties, and enabling the eye to aid the hand in the separation of adhesions. And if the aponeurosis and muscular planes—separated but not cut—are brought into careful apposition, the risks of hernia will not be great. It is best carried out at a time, when the last attack well passed, all is quiescent; for, although there may be this advantage in performing it within an early date after acute manifestations have disappeared, that the adhesions are softer and more easily separated, they are then more vascular and more apt to give rise to troublesome hæmorrhage.

It is not unusual to deal with the appendix by the application of a ligature placed around it near its base, before its division, but where it can be carried out it is safer to treat it by some method of peritoneal flap, and that proposed by Mr Chiene[2] is of easy application. This because one of the ablest of Scottish surgeons tells me that upon one occasion he lost a patient from intractable vomiting, which appeared a short time after the operation was completed and for which no reason could be found, either during life or after death, except in the tight knot upon the appendix, and that in another case similar symptoms made their appearance, but passed away on the fourth day, when in all probability the tissues having undergone softening, the tension was relieved. No severe operation in competent hands shows a fairer record, and whether this be due when pus is present to the auto-inoculation effects Reichel's experiments demonstrate, or because the area of peritoneum involved having been previously subjected to an inflammatory process is materially changed, is uncertain; but the possession of such knowledge, as regards results, weighs largely when advising a patient to undergo it.

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[1] *The Surgical Treatment of Perityphlitis*, 1895, p. 55.

[2] *Edinburgh Hospital Reports*, vol. iii. p. 547.

This, gentlemen, is a hasty and most imperfect sketch of a wide and important subject, and in presenting it, my hope is that it may call forth expressions on many points of interest in connexion with it from men of wider experience and of higher powers than are mine. And I would suggest for discussion the following points:—

Are there such conditions as catarrhal appendicitis, as rheumatic appendicitis, and stercoral typhlitis?

What are the signs and symptoms most valuable in the determination of early operation?

Should operation be undertaken when in cases seen later a firm, slowly-growing, well-defined tumour is to be felt in the right iliac fossa?

What is the best procedure to follow in reference to dealing with the appendix when operation is carried out between the third and the sixth day?

I cannot, however, in fairness to you, or in justice to my own feelings, close this presentment without some allusion to the great work which American surgeons have done in this field. Their methods, and the wonderful success which has attended them, demand the fullest consideration, and, although we may be unable to accept the teaching of some of them in its entirety, and may desire to wait for the light that comes of wider knowledge, and especially as to the true mortality of early operation in all cases in which appendicitis is present, it is impossible not to admit that, by drawing attention to the fatality of diseases of the appendix, they have given a valuable impulse to its recognition, and to its treatment. Many hold that their estimate as regards mortality is too high, and although I know how difficult it is to arrive at a just conclusion, investigation has led me to regard this question in another way. By inquiry among general practitioners, in whose powers of observation I have full confidence, and by obtaining from them the records of their cases, so far as memory served them, I found that in a considerable number thus collected the approximate mortality was 12 per cent. But, when I turned to the records of the Edinburgh Royal Infirmary (for which I have to thank the Registrars), where no one would dare to question the wisdom that guides, and the care that surrounds the sufferer, I find that during the last three years there have been admitted under the terms Appendicitis, Perityphlitis, and Typhlitis 151 patients, and of these 37 died, *i.e.*, 25 per cent. If I examine the surgical record alone, of 30 acute cases (perforation and abscess) submitted to operation, 18 out of the 30 died.

In the Hospital Reports of St Bartholomew's for the years 1893 to 1895 inclusive, and of St Thomas's 1892 to 1894 inclusive, there are under the headings Perityphlitis, Typhlitis, and Appendicitis 208 cases, of which 39 died, *i.e.*, nearly 20 per cent. This is exclusive of the returns under purulent peritonitis and peritonitis, and in which it is not unlikely that an even higher mortality may be found. Such grim records naturally stimulate thought and reflection regarding treatment, and in any circumstances they should, I consider, make each one of us hold ever before him in association with diseases of the appendix these three objects, an early diagnosis, a differential diagnosis between the various classes of cases, and the endeavour to determine if possible the nature of and the stage to which the underlying lesion has attained.[1] That early operation in the hands of a highly-trained surgeon will save some cases of peritonitis, and will prevent much suffering and much disability, is certain; but the question naturally arises, What will the mortality be if this is undertaken by the general practitioner? Despite these impressive statistics, experience has taught me that the natural history of appendicitis is not read truly when read in the sombre light of its worst cases; and we must not forget that, in the endeavour to avert a calamity which may threaten but never actually overtake the patient, we may, by too precipitate action, rob him of all the chance he has.

This much we must bear in mind, that early operation is not always easy of performance, nor is it attended by an assured success. Mark the declaration of one of its ablest advocates:—

"It is a serious operation, often a very difficult one, one requiring general surgical skill, good assistance, and every antiseptic precaution, and I do not recommend the operation to one who has never seen it done, nor do I recommend it when the requisites, such as I have referred to, are not attainable."[2] Are these qualifications and these requisites as general and as widespread as frequent operative interference would demand?

The decision as to the wisdom of operation is at times one of the greatest difficulty, and here, in this assembly, I record my conviction that in all acute cases of appendicitis the physician should, early in the case, call for the advice of the surgeon. If the latter should see the patient when need is absolute, he will, without hesitation, play his part; but as the determination often involves a most anxious consideration of the most minute details in a case—details which may demand time for a true estimate of their meaning—the surgeon might, at a first visit, naturally hesitate, and desiring further observation, will lose the opportunity which is more than golden.

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[1] *Annals of Surgery*, July 1896, M'Burney and J. W. White.

[2] *Ibid.*, vol. xiii. p. 247, M'Burney.

"Confessedly many cases are doubtful, and require the most careful weighing of evidence for and against operative procedure. The surgeon who has attended the case in consultation with the physician from the outset, and the physician who all along has had the benefit of surgical advice of a colleague, will both be better fitted to cope with any sudden emergency, and both will be far more likely to select the wisest time for the operation."[1]

It is sometimes said, and it may be with truth, that the greatest advances in the art of healing are being made on its surgical side; but be this as it may, the fact remains that in not a few notable instances this is due to the action of the physician who recognises that in certain diseases, whose treatment was once his province only, the sufferers are at times safer in the surgeon's hands; and so it comes about that by co-operation of knowledge the evils and the fatalities of disease are checked, and the debt that humanity owes us grows increasingly greater.

II.—PULSATING VESSELS IN THE PHARYNX.

By P. M'Bride, M.D., F.R.C.P.E., F.R.S.E., Surgeon to the Ear and Throat Department, Royal Infirmary, Edinburgh.

Abnormal pulsation in the pharynx is not a common phenomenon, and I have, so far as I remember, only encountered it on three occasions.

In the first instance the patient was a lady of 67, who consulted me on account of nasal polypi. On examining the pharynx, I found that the right posterior pillar of the fauces pulsated, and that the same phenomenon existed on the left side, but to a smaller extent. By digital examination I was enabled to trace a large arterial trunk across the posterior wall of the pharynx. I was only able to make short notes; and I saw the case some years ago, but to the best of my recollection I also saw this trunk in its course across the pharynx. There was a systolic, but no diastolic aortic bruit.

My second case was that of a man who showed a fluctuating and pulsating tumour in the region of one tonsil, which was eventually operated upon by Mr Cotterill, and found to be a cyst, although I must admit to having entertained a suspicion that it might be aneurysmal.

My third patient was again a female, and in her, as in the first the cause of pulsation was evidently an anatomical abnormality. Of her case I have more extended notes,[1] but shall only refer to such points as bear upon the symptom in question.

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[1] *Annals of Surgery*, vol. xiii. p. 263, Keen.

Mrs S., æt. 61, complained of tinnitus like the hissing of steam; as she had middle-ear catarrh, the subjective noises could in this way be accounted for, although probably the diffuse vascular anomalies had an indirect bearing upon the ear symptoms.

In the circulatory system the following points were of importance. There were epigastric and episternal pulsation—a systolic aortic murmur, with accentuated second sound. Carotids, subclavians, axillary, and brachial arteries showed marked pulsation. In the right forearm the radial artery was seen pulsating halfway down the forearm, and the pulsation could be felt 4 inches below the bend of the elbow. It then crossed to the back of the forearm superficial to the supinator longus, 1½ inch above the tip of the styloid process of the radius, and ran a tortuous course superficially to the base of the first interosseous space, where it disappeared. There was on this side some pulsation in front of the lower end of the radius in the usual position, but not so marked as in the left forearm. There was radial pulsation in the upper part of left forearm, but not so evident as on the right side, while the artery ran its normal course There were also visible pulsations in the abdomen (aorta), the posterior tibials, and the dorsal arteries of the foot.

Over the surface of the skin were noted a number of small nævi, from the size of a pin to that of a split-pea, while in addition there was a tendency to diffused but patchy dilatation of the capillaries. There was some albuminuria, diminished to a mere trace by milk diet.

On examining the throat, pulsation was seen at the junction of the posterior pharyngeal with the lateral wall on each side. This pulsation was thus evident behind as well as internal to both faucial pillars. The right vessel was seen to a lesser degree than the left; which latter extended more towards the middle line. On the other hand, the pulsation on the right side was communicated to the corresponding tonsil. Neither below the lower limit of the posterior fold nor in the naso-pharynx could any pulsation be seen.

I have thought it well to call attention to these cases, as the occurrence of pulsation in the pharynx is one of considerable clinical importance. As we have seen, a cyst in the region of the tonsil may pulsate because of its resting upon the carotid artery. No one, however, would be likely, without the most careful examination and consideration, to plunge a sharp instrument into a tumour of this kind. The other two cases to which I have referred are instances of vascular anomalies, and it appears to me that the occasional existence of such abnormalities should be fully recognised by all practitioners who may be called upon to treat acute throat affections, for it would be a terrible experience to plunge a bistoury into a large vessel in such a situation.

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[1] I have to thank my clinical assistant, Dr Logan Turner, for taking these full notes of this case.

It may not be amiss just to glance very briefly at some of the literary references to cases similar to those which I have just described.

Cresswell Baber (*British Medical Journal*, 1887, vol. i. p. 626) showed a case in which a vertical pulsating vessel as large as a slate-pencil lay in the region of the left salpingo-pharyngeal fold. In the same year (*ibid.*, vol. ii. p. 625) Saunderson referred to the case of a lady of 60 in whom a pulsating vessel as large as a crow-quill was seen between the posterior faucial pillar of the right side and the posterior wall of the pharynx. In 1891 Gellé (*Centralblatt für Laryngologie*, viii. p. 405) described before the French Society of Otology and Laryngology a somewhat similar case. In this instance the patient was a male, 46 years of age, and showed a pulsating vessel on the posterior wall of the pharynx a little to one side of the middle line. The position of this vessel was, as will be seen, different from that in the cases described by Baber and Saunderson. While Baber attributed the pulsation in his patient to an abnormality of the ascending pharyngeal artery, Gellé described his case as one of an anomalous vertebral artery.

By far the largest number of examples illustrating vascular anomalies of the pharynx leading to pulsation are recorded by Farlow (*Boston Medical and Surgical Journal*, vol. cxvi. p. 302). He records in his first paper five instances, of which three were observed by himself. In all of these the patients were females varying in age from four to thirty years; in two the vessels were seen pulsating on both sides, and in all their position seems to have been rather inwards from the posterior pillar and upon the posterior pharyngeal wall.

In a second paper (*Boston Medical and Surgical Journal*, cxxiii. p. 6) Farlow records eight new cases,—seven observed by himself, and one by Dr Knight. The ages of the patients varied from 17 to 68, and all excepting one were females. The pulsating vessels seem to have varied in position from "halfway between the uvula and the sides of the pharynx" to the "extreme" side of the pharynx.

In two of the second series of cases two pulsating vessels were seen.

The points of interest in connexion with this abnormal appearance of vessels may be said to come within two categories,—viz., (1), Anatomical; (2), Clinical.

Not being an anatomical expert, I hesitate to give any definite opinion as to which vessel we must assume to be abnormally placed in such cases as I have described. Certainly there seems no valid reason why the vertebral artery should not appear upon the posterior pharyngeal wall on one or both sides, while the vessels I have seen, as well as those described by others, seem to be of larger size than the normal ascending pharyngeal.

As to the clinical importance of such vascular anomalies, the common sense of the reader will instruct him. Vessels such as we have described might possibly be wounded in tonsillotomy, while in certain cases they might be injured in opening a retropharyngeal abscess, but they would run most risk in attempting to open an abscess in the retrotonsillar tissue. However, a knowledge of the possible existence of one or more large vessels in the posterior and postero-lateral walls of the pharynx will enable the operator to observe pulsation where it exists, and thus to anticipate danger.

III.—THREE CASES OF SYMPHYSIOTOMY, WITH REMARKS.

By Archibald Donald, M.A., M.D. (Edin.), M.R.C.P. (Lond.); Obstetric Physician to the Royal Infirmary, and Surgeon to St Mary's Hospital, Manchester.

In spite of the remarkable revival of symphysiotomy during recent years in Italy, France, and Germany, the operation has so far not found much favour in this country; a few isolated cases have been recorded in the medical journals, but there is no large list of cases by any one operator. For this reason the following account of three cases in which I have performed the operation may possess some interest.

Case I.—B. P., æt. 26, vi.-para.

Obstetric history.—First confinement, six years ago, transverse presentation, delivery under chloroform. Second, third, fourth, and fifth confinements, all instrumental, delivery under chloroform; all the children still-born.

Pelvic measurements.—Interspinous diameter, 9½ inches; intercristal, 10 inches; conjugata externa, 7 inches; conjugata vera estimated at 3¼ inches. Some general contraction of pelvis.

Patient was admitted to St Mary's Hospital, Manchester, on May 6, 1895, being then in the second stage of labour. After three hours, in spite of strong pains, there was no advance, and as the fœtal heart was beating vigorously, it was decided to try and deliver by symphysiotomy.

Operation (May 6).—Incision beginning about 1 inch above upper margin of symphysis, and terminating in mons veneris. Separation of nearly an inch on dividing the joint and sub-pubic ligament. Position of head adjusted at brim. Axis-traction forceps; easy delivery. The extent of separation of bones during extraction of head was about 2½ inches. Average-sized, healthy female child. Periosteum united with deep, buried, silk sutures; other sutures of silkworm gut. Dry dressing; strapping of pelvis; firm bandage; sandbags on each side of pelvis.

Convalescence uninterrupted. Patient was propped up in bed at the end of three and a half weeks, allowed to get up at the end of four weeks, and discharged from hospital at the end of six weeks.

Result.—There is now (August 1896) sound union of pubic bones. The patient can walk well, and has no sense of weakness in pelvis. She earns her living by hawking oranges about theatre doors. The child was discharged from the hospital in good condition, but at five and a half months old it succumbed to some infantile disease.

CASE II.—C. J. S., æt. 24, ii.-para.

Obstetric history.—First confinement, two years ago, forceps-delivery of macerated head after two days of strong labour pains.

Pelvic measurements.—Interspinous diameter, 8 inches; intercristal, 9 inches; external conjugate, 6¼ inches; conjugata diagonalis, 3⅞ inches; conjugata vera, 3⅛ inches.

Admitted to St Mary's Hospital, January 11, 1896, after labour had been going on for twenty-four hours. The first stage was completed; cervix widely dilated; the head over brim not engaging; fœtal heart sounds very distinct.

Symphysiotomy (January 11).—Usual steps. Primary separation of bones ½ inch. Axis-traction forceps; difficult extraction; cervix dragged to vulva; fully 2¾ inches separation of bones. Healthy female child of average size. Two rows of silk sutures (deeper row uniting periosteum and buried in wound). Dressing as in previous case.

Convalescence.—Some slight swelling and suppuration of labia. Patient up in four weeks.

Result (August 1896).—Firm union. Mother and child well.

CASE III.—A. S., æt. 32, vii.-para.

Obstetric history.—First confinement, at term, instrumental, child still-born. Second confinement, at term, instrumental, child "killed." Third confinement, at term, instrumental, child "killed" (St Mary's Hospital, six years ago). Fourth confinement, at 6½ months, induced, child lived a quarter of an hour. Fifth confinement, at seven months, spontaneous labour, child lived one hour. Sixth confinement, at term, delivery by natural forces after tedious labour of macerated fœtus.

Pelvic measurements.—Conjugata vera, 3¼ inches, with some shortening in transverse diameter of pelvis.

Admitted to St Mary's Hospital at midnight, March 7, 1896. Membranes broke about sixty hours before admission. Os not quite fully dilated. Fœtal heart sounds audible. At 7.30 A.M. on March 8, Champetier de Ribes's bag was pushed into the cervix and distended. It was expelled at 10 A.M.

Symphysiotomy, at 10.30 A.M., March 8.—Usual steps. Axis-traction forceps; moderately hard delivery; separation about 2 inches. Small puny male child, which required some resuscitation. Sutures and dressings as in Case II.

Convalescence rapid. Patient got up in nineteen days, but was detained in hospital thirty-one days on account of illness of infant (congenital syphilis).

Result (August).—Sound union. Mother very well, child survived three months, but died of congenital syphilis.

Summary of Cases.—In all three cases the true conjugate of the brim measured not more that $3\frac{1}{4}$ inches; in the second case it was barely more than 3 inches. The first and third cases were examples of the generally contracted flattened pelvis; in the second the pelvis was flattened only. The greatest amount of separation between the pubic bones occurred in the second case, in which the interval, at the time of greatest stretching, measured $2\frac{3}{4}$ inches, or 7 cm. This patient had as rapid a convalescence as the others, and is now quite well, with firm union of the pubic bones, and no pain or abnormal looseness in the sacro-iliac joints. In the first and third cases the separation was $2\frac{1}{2}$ and 2 inches respectively. The effect of the separation was most marked in the first case, in which there was difficulty in restraining the too rapid advance of the head when the forceps was applied. In the other two cases separation was almost entirely produced by traction on the head with the forceps, and in both considerable traction had to be employed. In the second case the cervix was dragged to the vaginal orifice, and there was some prolapse of the anterior vaginal wall.

The technique of the operation was as simple as possible. The instruments used were—a scalpel, a probe-pointed curved bistoury, a dozen pressure forceps, and a few large half-circle Hagedorn's needles, with the needle-holder. The most stringent antiseptic precautions were observed—vigorous washing of the vagina and the external genitals with soap and hot water, shaving, and then careful swabbing and douching with sublimate solution (1 in 2000). The incision was in the middle line, and extended from 1 inch above the upper margin of the pubes almost to the root of the clitoris. In the third case the incision was not carried so low, but during the division of the symphysis the soft tissues were pulled down by the finger of an assistant. The anterior surface of the symphysis was thoroughly exposed, aud small lateral notches were made at the upper border of the pubic bones, so as to divide slightly the internal attachments of the tendons of the recti muscles. Special care was taken to clear the pubic arch. The left forefinger was then pushed down from above behind the symphysis, so as to protect the bladder, and the joint was divided with the bistoury from above downwards, the fibres of the sub-pubic ligament being carefully divided. While the knife was being used an assistant on each side made strong pressure inwards on the trochanter, so as to prevent sudden springing outwards of the bones. The hæmorrhage was never serious, and was mostly venous. Superficial bleeding was arrested temporarily by pressure forceps, and the deeper vessels were controlled by tampons of iodoform gauze, held in position by an assistant. Forceps was then applied to the head, and traction gradually made, the bones being allowed to separate to the extent that seemed safe. The placenta was expressed, and then the bones were pushed together by the assistants. The periosteum was united by medium-sized silk sutures, which were buried in the wound, and the soft tissues were brought together by silk or silkworm gut, care being taken to under-run the bleeding points. The wound was dressed with iodoform gauze, the pelvis nearly encircled with broad strips of strong plaster, which were pulled tightly, and the patient placed in bed between sandbags.

The results of the operation have been most satisfactory in all three cases. All the mothers recovered without serious complication, and all the children were born alive. Unfortunately, two of the latter have since died—one at 5½ months, from gastro-enteritis, and another at three months, from congenital syphilis. As to the remoter results of the operation, there is, up to the present time, no complication to be noted. All of the patients have firm union at the symphysis, and they are all able to walk and to lift weights as well as before the operation. In the two recent cases, in which only a period of 5 and 7 months respectively has elapsed since operation, the results are just as good as in the first case, and it seems reasonable to assume that they will not become worse as time goes on.

General Remarks.—From my own experience, I believe that the operation, when performed carefully in properly selected cases, is one of the greatest value, and is free from serious risk. A bare consideration of statistics does not seem to warrant the latter statement; the compilation of a large number of cases which have been recorded gives us a maternal mortality of something a little over 11 per cent. But many of these operations were performed on patients in whom the pelvic contraction was greater than experience has since shown to be suitable for symphysiotomy, and in some cases, after the patients had been in labour for a long time, or other methods of delivery had been unsuccessfully tried. Everything depends on the selection of suitable cases. In the first place, it is evident to all who have witnessed the operation that the danger increases rapidly in proportion to the degree of pelvic contraction after a certain point. In my second and third cases considerable traction with forceps had to be employed to deliver the head, although the limit of safe separation of the pubic bones was reached in the former, and the fœtal head was below the average size in the latter. I believe, therefore, that with a normal fœtal head, the operation should not be performed at term if the conjugata vera measures distinctly less than 3 inches. Other contra-indications are—a narrow vagina and rigid perineum, a prolonged labour, and previous prolonged efforts at extraction with forceps. To this, it is of course unnecessary to add that we must be quite sure that the fœtus is alive before operating. Further, from the importance of the maintenance of strict asepsis in the wound, the existence of purulent vaginitis should cause one to hesitate before performing symphysiotomy.

The dangers may be thoroughly classified into four groups:—(1) Sepsis; (2) hæmorrhage; (3) injuries and lacerations of urethra, bladder, and vagina; and (4) injuries of sacro-iliac joints.

1. The avoidance of sepsis can only be obtained by the most scrupulous disinfection before and after operation.

2. Hæmorrhage is generally slight, except in the lower part of the incision, and for this reason it is advisable not to prolong the incision too far, but rather to draw down its lower angle a little. The front of the symphysis pubes, as well as its upper and lower margin, should be carefully cleaned with the knife, and the separation of the bones should only be allowed to take place very gradually.

3. Injuries and lacerations of the urethra, bladder, and vagina are more likely to occur in primiparæ, and for this reason many writers regard the operation as unsuitable in first confinements. The insertion of the forefinger behind the symphysis will prevent direct injury to the soft parts behind, and renders unnecessary the use of any director. Careful division of the sub-pubic ligament and slow separation of the bones are needful precautions against laceration of the soft parts.

There is a risk during the extraction of the head, of bruising the soft parts between the ends of the pubic bones and the head of the child. This may be obviated by the insertion of a pad of iodoform gauze behind the ends of the bones, and by careful extraction.

4. The main cause of injury to the sacro-iliac joint is excessive separation of the pubic bones. The operator must be careful to watch the amount of separation and to measure the space if it seems to be growing dangerously large. Pinard has given 7 cm. as the measurement of separation beyond which it is not safe to go. Two good assistants are necessary, one on each side of the patient's pelvis, to make pressure inwards at the time of the division of the symphysis, and later if the bones seem to be separating too widely.

Time will not permit me to discuss the relative advantages and disadvantages of symphysiotomy as compared with other methods of delivery which aim at saving the child, but I may say that, within its proper limits, it is in my opinion to be preferred to Cæsarean section, and offers a much better chance for the child, and is little, if at all, more dangerous for the mother than the induction of premature labour.

I have to acknowledge gratefully the assistance of Dr Walls, the resident obstetric surgeon to St Mary's Hospital, who saw the patients in the first instance and helped me at the operations, and from whose notes the history of each case is written.

IV.—IS MEMBRANOUS CROUP ALWAYS DUE TO THE MICROBE OF DIPHTHERIA?[1]

By GORDON SHARP, M.D., Leeds.

THE discovery of the specific cause of diphtheria in the shape of the organism known as the Klebs-Loeffler bacillus entitles us to the hope that this oft hotly contested question may be for ever settled. If the bacillus is found in the membrane in every case, then we shall have to answer in the affirmative; but if, on the other hand, membranes exist in which no organism answering to the specific one present in true pharyngeal diphtheria, then the contention of the Scotch School (1)[2] will be established as a certainty. If the discovery of Klebs and Loeffler does nothing more than enable investigators to clear up this difficulty, it will have done a great deal. But many years must elapse before the verdict is received, and meanwhile we must be content with clinical evidence.

In the discussions hitherto on this vexed point, the love of truth has often been lost, and calm reasoning has given place to national prejudice. Bretonneau (2), although he did so much to advance the knowledge of diphtheria, was the first great sinner when in the preface to his great work he wrote:—"Francis Home persuaded himself that he had just met with an affection which had hitherto escaped the attention of his predecessors; he thought he ought to give it the popular name under which he found it designated in a Scotch province. The novelty of his discovery was widely diffused, and the new denomination so fascinated all persons, that it prevented them from recognising a disease observed from the most remote antiquity, and which in our days is accompanied by all the symptoms which it has uniformly exhibited."

Bretonneau's indictment conveys a compliment to Home and the "Scotch province," and a rebuke to Home's contemporaries and successors.

Although the title of my paper defines the subject I wish to discuss, so much confusion has collected around the name "croup," that I may be allowed to state what I do *not* mean by the term. I exclude the affections known as *laryngismus stridulus* and acute catarrhal laryngitis, in which there is no membrane present, and which latter, so far as I can gather from writings and from personal experience, is a definite affection, and when uncomplicated usually results in recovery. This I believe to be consistent with contemporary knowledge. I think one is further justified in excluding all cases of laryngeal membrane due to destroying agents such as steam, hot water, carbolic acid, ammonia, corrosive sublimate, the corrosive acids, the caustic alkalis, or any other agent which kill the epithelial covering, and so in many instances form a cast of the windpipe or other part to which they are applied. These act mechanically in reality, but in their destruction of proteid matter a certain amount of fibrin is present. Thus strong chemical or mechanical agents in their action in this particular way resemble the bacillus of diphtheria, the growth of which is attended with the production of much fibrin. We have good reason for excluding all cases of membrane due to these chemical and mechanical agencies, for when we have a history of their presence then we may expect a membrane. I have seen a membrane covering the whole of the tonsils and pillars due to corrosive sublimate poisoning, and which when stripped off left bleeding points. There was no doubt about the cause, for we had evidence of the poison being taken. If this takes place in the throat, so may it in the air-passages. This narrows us down to a membrane in the windpipe in which there is no distinct evidence of a previous diphtheria in the throat. I am not forgetful of the fact that valuable as Bretonneau's contributions are, they are to be received with caution by the man who desires to arrive at the truth, for much that he wrote was written for the purpose of proving the error of Home's observations. The same applies to his pupils and followers, among whom we may mention Trousseau, Guersant, Bouchut, Empis, and Daviot, all of whom were more or less prejudiced against the Scottish observers.

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[1] Being part of a Thesis for which the writer received the degree of Doctor of Medicine in the University of Edinburgh.

[2] The figures within parentheses refer to the Literature at the end of this paper.

Since Bretonneau's time opinion has somewhat changed in Great Britain, and many pathologists and clinicians have adopted the views of the great physician of Tours. In 1879 a committee of the Royal Medico-Chirurgical Society of London (3) obtained the views of many of the Fellows of the Society on this vexed question, but, so far as I have been able to interpret the replies, in general they leave the query unanswered,—in fact, much as it was. I have read the works of Home, Cheyne, and others; but they are all so well known, and are so fully noted in the said report, and are so often quoted, that it is unnecessary for me to do more than mention the names, and I pass on to state shortly the views of other authorities, and to offer criticism or comments on the various points which may be raised in the quotations.

Osler (4) says—"Between diphtheritic laryngitis and croup a majority of writers now hold that there is no essential difference." But the verdict is not so unanimous as Osler would have us believe. True, it is often stated that in Scotland the rank and file of the profession regard croup as different from diphtheria of the windpipe, while in England croup and diphtheria are looked upon as one and the same. This may or may not be true of the general practitioners of England, but amongst the writers at least in England the so-called Scotch view seems to find the largest number of supporters, as I will presently show. Seymour Taylor (5), in 1894, in discussing diphtheria, places after it, and within brackets, "membranous croup," leading us to believe that he regards them as one and the same. Hamilton (24), too, if I mistake not, in his book regards membranous croup as diphtheria affecting the air-passages. Senator (6) evidently shares Bretonneau's views, for he says Ruppius of Baden was the first to show that the pharynx generally is the first affected in croup, and Bretonneau followed. John Abercrombie (23) says, "The membrane may either spread to the larynx, or the disease may attack that part primarily, a condition to which the name croup used to be and is by some few writers still applied." William Squire (7) says, "Epidemic croup is strictly diphtheria." But then one must not forget that it is here only of epidemic croup that the writer speaks. Ziegler (8) I have misgivings in quoting, for although in the statement which follows he would appear to look upon croup and diphtheria as the same, yet we must remember he discusses the question from the standpoint of the morbid anatomist pure and simple. Further, he employs the terms croupous and diphtheritic inflammation,—terms which to-day are hardly appreciated in Great Britain. Altogether one hardly knows on which side to place Ziegler's evidence. He writes: "It will be seen that we make no pathological distinction corresponding to that implied in the clinical terms croup and diphtheria. The specific infective disease diphtheria, when it is accompanied by croupous or superficial diphtheritic inflammation of the larynx and trachea, is the same as the affection clinically described as 'membranous croup,' a term which the pathologist may well dispense with." So much for the dogmatic teaching in favour of the identity of the two so-called conditions; and when I cite the opinions on the other side, I think it will be agreed that the verdict is far from being so unanimous as Osler states.

So long ago as 1843 Watson (9) wrote,—"The croup is not contagious, although, like *cynanche tonsillaris*, and for the same reasons, it is found sometimes existing at the same time or in quick succession in more than one child of the same family." This would rather point to its contagiousness, one would naturally imagine. A further quotation from the same authority shows that the malignancy is greater than most observers—who hold croup and diphtheria as different affections—ascribe to croup. Watson says, —"It is said that four children out of five attacked by it used to die, but that now, the treatment being better understood than formerly, the number of deaths and number of recoveries are nearly equal." Hilton Fagge (10) gives a definite opinion, saying,—

"What I regard as a non-infectious malady—namely, croup." And he makes another statement, about which there is no uncertainty,—"To sum up, it seems clear that no fixed line can be drawn between membranous croup and the milder forms of the disease in which no false membrane is developed, except in those cases in which it occurs over and over again with sudden and alarming, but very transitory, symptoms, may be separated under a distinct designation, for which purpose the name of spurious croup seems to be the most appropriate." Charteris (25) cautiously puts it, "Diphtheria and croup are closely allied." Norman Moore (11) gets out of the difficulty by saying, "Croup is a clinical term, and has no precise pathological meaning, and may be due to one of three pathological conditions—(1), Laryngismus stridulus; (2), diphtheria affecting the larynx; (3), acute catarrhal inflammation of the larynx and trachea." This is hardly likely to advance our knowledge, for I think most authorities now regard laryngismus stridulus as a distinct condition common among rickety children, and acute laryngitis is by nearly every one spoken of as false croup. On these grounds one is justified in taking exception to this author's summing up of the disease called croup. In the days of Home and Cheyne, Moore's definitions might have passed, but now we have made an advance, and the difficulty is reduced to a question of membranous croup and diphtheria. Coates (12), while recognising that the great majority of cases of croup are really diphtheria affecting the air-passages, goes on to say,—"Looking at the matter from a purely pathological point of view apart from clinical experience, it certainly seems possible that other irritants may produce similar results." Payne (13), in discussing this question, writes,—"It should, however, be stated that a croupous membrane is readily produced in the air-passages of animals by irritating substances (ammonia, acetic acid, etc.), and is, though rarely, produced in man by simple irritants, possibly cold." This point will be dealt with later on. Green (14) has the following:—"Simple mechanical or chemical injuries will produce a typical croupous membrane." Maguire (15) believes that we have cases not due to diphtheritic poison, and writes,—"There remains still a certain proportion of cases of membranous laryngitis which are not due to the action of the diphtheritic poison." Henoch (16) speaks of diphtheritic croup and inflammatory croup, and the different mortality in each, so he would appear to favour the idea of two distinct diseases. But here, again, we are in a difficulty, for the Germans, with all their advances in pathology, cling to the terms catarrhal, croupous, and diphtheritic inflammations, the two latter of which we in Great Britain regard as confusing and somewhat antiquated. Goodhart (17), in writing of croup, says,—"My own opinion is that there are grounds sufficient for a belief in the existence of a non-diphtheritic as well as of diphtheritic membranous croup." Frederick Taylor (18) gives it,—"There can be no doubt that diphtheria sometimes begins in the larynx. But there are cases of laryngitis with the formation of membrane which are called croup, and these by some are supposed to be purely catarrhal, or at least not contagious, and not due to diphtheritic poison." Aitken (19) says boldly, "True croup—'the croup' is a different disease—a disease different from diphtheria." He describes the membrane as alkaline in reaction; if this be actually so, it differs from the membrane in true diphtheria, which, according to Sidney Martin, contains an organic acid, and one would naturally expect it to be acid in reaction. My own experience is that the throat and its secretions in diphtheria and other affections is acid. Da Costa (20) writes,—"I am still of the belief that there is such a disease as a membranous laryngitis which is not diphtheria." Flint (21) gives his view in the following words:—"Whether diphtheria and membranous croup be distinct diseases. Regarded from a clinical point of view, it seems to me clear that this question is to be answered in the affirmative. There is, moreover, nothing in the pathology of the disease opposed to this view. It is established, both experimentally and clinically, that pseudo-membranous inflammations of the throat may be produced by a variety of causes, such as inhalations of hot vapour, the swallowing of corrosive poisons, etc." Warburton Begbie (22) in one of his essays makes an observation with which I close this list of quotations:—"I remember, as I have observed before in this Society (the Medico-Chirurgical Society of Edinburgh), on the occasion of my first seeing cases of croup in the French hospitals, to have been struck by noting the great care exercised in the examination of the mouth and throat of the child, and when instances of the disease were described by Trousseau or Guersant I failed to recognise the distinguishing features of the disease as familiar to me in the writings of British physicians."

As I have already said, I suggest that we bring this question within narrower limits by throwing out all cases of membranous laryngitis due to mechanical or chemical injury. Syphilis, being a chronic malady as far as the air-passages are concerned, hardly comes within the limits of consideration. This practically leaves only the simple febrile condition designated by the name of cold to be considered as a cause of membrane of the windpipe. I say practically, for measles, scarlatina, and other diseases affect the throat and larynx in many instances, and hence come within the scope of our inquiry, and will be dealt with when we have discussed the question of cold. Can cold, then (as suggested by Payne and others), or any of the simple febrile affections cause the formation of a membrane in the air-passages? Cold is denied by many authorities to be of itself a cause of disease, but cold weakens a tissue and makes it liable to attack, and when cold is suggested we suppose that this is what is often meant. Let us examine the matter more fully, and try to learn from the effect of cold on other parts. We take the throat. No part of the body is, perhaps, more liable to disease. In breathing, the soft palate, pillars, and tonsils are impinged upon by air of varying degrees of temperature, and we find them red and inflamed in cold weather. The throat, so to speak, acts like a breakwater to the alimentary and respiratory tracts. The nostrils, too, are subject to the evil effects of changes of temperature and of suspended particles in the air that is breathed, and hence we find them especially liable to catarrhal affections. In the throat and nostrils cold produces almost no membrane; at the most it is a thin shimmering layer of almost no consequence. If cold, so-called, then, brings about so little membrane in the throat and nostrils, the tissues of which appear to be the most favourable to attack, I think we are entitled to be sceptical as to cold producing an extensive membrane in the larynx, otherwise that it can produce membranous croup. So much for cold; and I now turn to the consideration of some other conditions in which the throat suffers. We find it affected in gout, rheumatism, typhoid fever, measles, scarlatina, and in most diseases in which there is a rise of temperature. In many of these, too, the nostrils suffer. The fact, too, of particles of food lodging about the throat and tonsils makes the part a culture soil for maladies of another kind, such as thrush. Most of these may be rapidly passed over. Gout, rheumatism, and typhoid fever hardly concern us. Rheumatic sore throats are attended with little membrane, or so little as to cause no anxiety. Quinsy may be attended with small necrotic yellowish patches, but no continuous membrane. Measles produces very little alteration beyond redness and swelling in the great bulk of instances, and in the worst cases a necrosing of the superficial layers in small patches distinct from each other, and with no tendency to spread. Scarlatina may show nothing but redness or a collection of yellowish dots, which, when examined by the microscope, is seen to be made up of round cells, or in the worst cases a series of necrosed patches are seen, but not the continuous membrane of diphtheria. Of course, one excepts the combined cases in which diphtheria is associated with the scarlatina. Others might be enumerated, but enough has been said to pave the way for my contention. The windpipe suffers little, as a rule, in the diseases just considered, and in the severest cases I question if ever a false membrane appears.

Without being too dogmatic, as the result of my experience, I incline to the view that membrane in the larynx is (saving under the conditions already enumerated) due to the poison of diphtheria, and I pass on to answer some of the objections to this view in the following terms, drawn from observations made in my own practice. To the objection that croup (membranous) begins without any affection of the pharynx, I answer there is no reason why diphtheria should not first attack the windpipe and even never spread beyond this. We often find a catarrhal laryngitis while the parts of the tract above and below are spared, or we may have a nasal and pharyngeal catarrh accompanying a bronchial catarrh, the intervening larynx and other parts being passed over. But more, we may have a membrane in the windpipe, and only the merest red patch in the throat, and yet this patch is diphtheria, for it is often difficult to get a good view of the throat in a refractory child. A child, as is well known, may have considerable throat trouble without making complaint, and often diphtheria is not suspected till, as a matter of routine, the mouth is examined. That membranous croup is a disease of early childhood is met with the answer that so is diphtheria to a large extent, the tender tissues of the young being apparently especially suitable for the growth of the microbe. In croup it is or was held that boys are more liable than girls. Before this could be settled one would have to eliminate all cases of laryngismus stridulus and other affections unattended with membrane, and all of which were formerly included under the one name croup. Besides, in records of cases I have gone into (in which all kinds of cases are included), boys and girls appear to be nearly equally subject. As I write, I have beside me a record of thirteen cases, by Disney Alexander of Halifax, published 100 years ago (when Home's views held sway). The list gives seven girls and six boys. A large number of cases of croup occur during the first year of life, and it is an established fact that within this period more boys die than girls, and this means that disease in general attacks baby boys more than baby girls.

It is often said that croup is not contagious, while diphtheria is highly so, and in consequence croup may be confined to one member of a large family. This can hardly be adduced as an argument in favour of croup so-called not being contagious, or to say the least it is a weak one, as I intend showing. Highly contagious diseases may be confined to one member of a large family. A short time ago I attended a girl of 16 in well-marked scarlatina. Three younger members of the family remained free, and yet complete isolation was impossible in the house. A boy of 12 contracted scarlatina during an epidemic of the disease. Four younger members of the family remained free (the boy was the only one of the family attacked), and yet this patient was at home all the time. He was confined to one room, but in a small cottage house it was impossible to keep a child from straying into the bedroom. During the same epidemic a boy in another family was the only sufferer out of a large number of members, and that, too, under the most unfavourable surroundings as to house-room. A girl of 4 contracted diphtheria, confirmed by bacteriological examination. A brother two years older and two children younger, members of the same family, remained well. A boy of 7 had diphtheria, an older brother and sister in the same house did not contract the disease, and yet they could not well be kept away from the patient. The mother, who nursed the boy, did all the household work and cooking. A girl of 4 had diphtheria in a cottage house, and six other children, members of the same family (the eldest 12 and the youngest at the breast), remained well. Instances might be multiplied, but I think enough have been given to show that infectious and contagious diseases like diphtheria and scarlatina may be confined to one member of a family even under circumstances favourable to their spread. Hence the necessity for caution in accepting the view of their being a non-contagious croup.

The argument sometimes adduced, namely, that membranous croup is sporadic, breaks down, for we often see diphtheria and scarlatina occurring sporadically. One hears it stated that in membranous croup there is no previous throat trouble, but malignant diphtheria may exist and yet cause little throat trouble. The following cases, taken from the practice of a fellow-practitioner, illustrates this. A child became ill with symptoms pointing to a stomach trouble. The tongue and mouth were examined, but nothing pointed to the throat. The child died suddenly, and a second child became ill, and this led to a very thorough examination of the patient, when a membrane was discovered in the throat. An examination of the body of the first child revealed a membrane in the throat. The second child died.

The following illustrate, as I take it, the relationship of pharyngeal and laryngeal diphtheria. A young man contracted diphtheria and died. The disease had often broken out in cases of two or three at a time at different periods in this neighbourhood. Six months later, next door to this case, a boy became ill on a particular Sunday afternoon, with symptoms pointing to the air-passages. The throat was reddish and catarrhal. On Monday the breathing became increasingly difficult, and symptoms of "croup" appeared. Tracheotomy was performed, and the child died on Tuesday morning. Taken by itself this latter case might have passed as non-contagious croup, but the fact of diphtheria being common in the district throws a different light on the condition. I should add that membrane was discovered in the windpipe.

The next class illustrates how diphtheria may first manifest itself (by serious symptoms) in the air-passages, and yet may have been previously present in the throat in a mild form. One child ill for some days, but so trifling as to call for no medical attendance, became suddenly worse one day, the breathing being difficult and croupy in character. This increased, and the patient died in less than forty-eight hours after having been first seen. None of the other children were affected. This might have passed as an instance of non-contagious croup, saving for the following circumstances. The throat was red, and I fancy I detected a membrane in the throat, but the child was so nervous that it was with the greatest difficulty I could get a partial view. A fortnight later a child living next door became ill in the same manner, and died in less than twenty-four hours of "croup." The throat was evidently affected with diphtheria, but *the* symptom prominent was the croupy condition. Both lived in a most insanitary district, and the two families intermixed freely although warned of the danger.

The next case is an instance of what is often observed. A man had a sore throat, but so slight as to pass almost unobserved by him. In six weeks he lost all power in his legs, being helpless in the extreme,—in short, he suffered from diphtheritic paralysis. A child may in the same manner have diphtheria of the throat so slight as to escape detection till it spreads to the windpipe, as it is more prone to do in the child than in the adult, and after all there may be much in Bretonneau's contention.

Within a narrow circle of a densely populated area three instructive cases occurred within a few weeks of one another. A boy complained of sore throat. The throat and tonsils were red, but no membrane was seen, and the condition could hardly be called diphtheria, and was looked upon as simple sore throat. In a day or two laryngeal symptoms came on, and he died. Soon after, a child in the next street but one, and within 100 yards or thereby, began with croupy symptoms and died. Taken by themselves these two cases might have been passed by as simple croup, but studied in conjunction with the next, we have to consider whether they may or may not have been diphtheria. Soon after, a man in the street between these contracted diphtheria and recovered. All may have been diphtheria.

During an epidemic of sore throat in a district in which diphtheria is often prevalent, I saw on the 20th April a woman of 36 and her boy aged 4 who complained of sore throat. In both patients the skin was dry, the pulse rapid, and the throat red, with a yellowish pellicle on the tonsils. I said both were most likely simple, but in case of their being diphtheria, it was best to avoid contact with the other members of the family. My opinion was the more cautiously expressed, because in this same block of buildings in which they lived fatal cases of diphtheria had taken place. Next day both looked better under treatment, and on the third day they had so far recovered that I did not deem it necessary to further attend them. On the 2nd of May I was hastily summoned to the boy (that is, nearly a fortnight after I had first seen him). I found him breathing rapidly and with great difficulty, and with a well-marked croupy cough. No complaint was made of the throat this time. On examining his throat I saw a thick yellow membrane extending from side to side. The history of the present illness was that he got over his former throat affection, had been to school all the week, and on the Friday evening began suddenly with symptoms of "croup," after having been paddling barefoot in a brook near at hand. The breathing was so distressing that I had under consideration the advisability of opening the windpipe, and I told the parents of this, and to apprise me at once if very urgent symptoms appeared. A terebene vapouriser was placed in the room. Ultimately the boy recovered without operation. There would appear to be little doubt as to this being diphtheria, for albumin was present in the urine abundantly, and on the seventh day the heart-beats became intermittent. The sudden onset and recovery, on the other hand, look like what one hears described as "croup." About the throat trouble there is no doubt in this case. The boy may have suffered from diphtheria in the first illness on the 20th April, and the disease remained latent till the 2nd May, when it spread more in the throat, but only developed severe and alarming symptoms when it extended to the air-passages.

In concluding, I again add that on the whole I am disposed to count myself a convert to the view of Bretonneau and the French School,—till bacteriology has finally settled the point of dispute.

LITERATURE.

1. FRANCIS HOME.—*An Enquiry into the Nature and Cause of the Croup.*
2. BRETONNEAU and OTHERS.—*Memoirs on Diphtheria.*
3. *London Medico-Chirurgical Society's Report for Year* 1879.
4. OSLER.—*Principles and Practice of Medicine.*
5. SEYMOUR TAYLOR.—*Index of Medicine*, 1894.
6. SENATOR.—*New Sydenham Society's Publication.*
7. WILLIAM SQUIRE.—*Reynold's System of Medicine.*
8. ZIEGLER.—*Special Pathological Anatomy*, 1884.
9. Sir THOMAS WATSON.—*Practice of Physic*, 1843.
10. HILTON FAGGE.—*Principles and Practice of Medicine.*
11. NORMAN MOORE.—*Medical Anatomy.*
12. COATES.—*Manual of Pathology.*
13. PAYNE.—*Manual of General Pathology.*
14. GREEN.—*Manual of General Pathology*, 1881.
15. MAGUIRE.—*Quain's Dictionary of Medicine*, Article by
16. HENOCH.—*New Sydenham Society's Publications.*
17. GOODHART.—*Diseases of Children.*
18. FREDERICK TAYLOR.—*Manual of Practice of Medicine.*
19. AITKEN.—*The Science and Practice of Medicine.*
20. DA COSTA.—*Medical Diagnosis.*
21. FLINT.—*Treatise on Principles and Practice of Medicine.*
22. Sir DYCE DUCKWORTH.—*Warburton Begbie's Works*, Edited by
23. JOHN ABERCROMBIE.—*Fowler's Dictionary of Practical Medicine.*
24. D. J. HAMILTON.—*Text-Book of Pathology.*
25. CHARTERIS.—*Practice of Medicine.*

V.—SHORT NOTES ON THE VALUE OF THE BACTERIOLOGICAL EXAMINATION IN DIPHTHERIA.

By F. REID MACKAY, M.D., late Bacteriologist, Fever Hospital, Edinburgh.

THE criticisms against bacteriological methods of diagnosis in diphtheria can be divided into two groups :—The first, those who deny that Lœffler's bacillus is the cause of diphtheria; and, second, those who assert that many cases proved to be diphtheria by bacteriological examination, give no clinical evidence of the disease.

Hansemain, in 1894, asserted that the Lœffler bacillus was not the specific cause of diphtheria, and claimed—

1. That the Lœffler bacillus is not found in all cases of Bretonneau's diphtheria, but only in about 75 per cent., though all must be regarded as typical diphtheria.
2. The Lœffler bacillus is never found alone, but in conjunction with other bacteria, as staphylococci, streptococci, pneumococci, micrococci, and a number of other bacteria.
3. The Lœffler bacillus is found in diseases not identical, either clinically or anatomically, with Bretonneau's diphtheria, such as phlegmon of the skin, mild conjunctivitis and pharyngitis, and rhinitis fibrinosa.

The first objection does not carry much weight, the methods of detecting the bacillus may be defective, or they are really not diphtheria at all. The second objection is also absurd; in the same way one might reject the Eberth's bacillus because it is found along with a large variety of other bacilli. The third criticism requires further proof to carry any weight. Prudden has stated that "we are now justified in saying that the name diphtheria, or at least primary diphtheria, should be exclusively applied to that acute infectious disease usually associated with a pseudo-membranous affection of the mucous membrane which is primarily caused by the bacillus diphtheriæ of Lœffler."

Granting the truth of the above statement, the point under consideration is,—can the detection of the so-called Lœffler's bacillus definitely settle for practical purposes any particular case as being one of true diphtheria? Is it correct to regard all bacilli found in the throat and resembling Lœffler's bacillus, as being in reality Lœffler's bacillus? It has been undoubtedly proved that there are rod-shaped bodies resembling the Lœffler bacillus found in the throat that are not the real bacillus, but a so-called pseudo form, which does not give rise to toxic effects if injected into animals. This pseudo form is identical in appearance with the virulent bacillus, and is undoubtedly the great drawback to the bacteriological diagnosis of diphtheria. The question is not yet settled whether this pseudo form is an attenuated Lœffler's bacillus or quite a distinct species.

After examining any particular case and noting the various points, the extent of the membrane, etc., a portion is removed and introduced into a sterilised test-tube, or a small piece of protective. This is either sent to a recognised research laboratory for a careful examination, or may be quite easily personally conducted. The *modus operandi* is as follows:—Firstly, a culture is made by drawing a portion of the membrane over a nutrient medium, the best being blood serum; secondly, a direct examination of the organisms present in the membranous exudate, this is done by teasing a portion of the membrane on a cover glass and staining with methylene-blue.

This direct method I consider is very valuable. Some observers, however, declare there is not much value in it. It undoubtedly gives one a representation of the organisms present in the membrane at the time of removal, and to a slight degree their relative proportions to one another.

For instance, in an intensely septic case the micrococci and diplococci are shown by this method to be in vastly larger numbers than the Lœffler bacillus, which are points most valuable in the particular form of treatment which should be undertaken. Then, again, this method reveals various organisms that may be entirely overlooked in the culture preparation, on account of their slow growth or their inability to grow on the particular medium used.

In the great majority of cases this method clearly demonstrates the presence of Lœffler's bacillus, afterwards confirmed by the culture. It is quite the exception to find the culture method showing the presence of Lœffler's bacillus that has not been already detected in the film preparation.

Then, again, a great advantage of the film method is that you get a result at once, and do not require to wait twenty-four hours, as in the case of the culture.

This, of course, is most important in a disease like diphtheria, where instant action is required for the safety of those in contact with the case.

Roux and Jersin (*Annales de l'Inst. Pasteur*, 1890) stated that it was possible to discover by the direct method a bacillus of diphtheria at once, in that way getting a rapid diagnosis. Of course, the presence of a large quantity of other bacilli may make this very difficult; and also, if the bacillus is not detected, it is absurd to say that the case is not diphtheria until further investigation has been made.

Ernst distinguishes three varieties of the diphtheria bacillus:—

1. Long bacilli, which are the typical bacilli described by all authorities.
2. Intermediate, slightly smaller.
3. Small bacilli.

Certain observers lay a considerable amount of importance on the particular form present in any given case. Martin, for instance, found the short ones mild, the intermediate more toxic, and the long ones most toxic. He, however, states that in fatal cases, when the medium or short were present, they were associated with streptococci.

Personally, I have no doubt whatever that the bacteriological examination in diphtheria is of great service both as regards the diagnosis and treatment of any particular case. It is also an aid to the prognosis, which, in true diphtheria, should always be most guarded.

Part Second.

REVIEWS.

The Treatment of Phthisis. By ARTHUR RANSOME, M.A., M.D., F.R.S., Consulting Physician to the Manchester Hospital for Consumption and Diseases of the Chest and Throat. London: Smith, Elder, & Co.: 1896.

The Treatment of Pulmonary Consumption: A Practical Manual. By VINCENT DORMER HARRIS, M.D., F.R.C.P., Physician to the City of London Hospital for Diseases of the Chest, etc.; and EDWIN CLIFFORD BEALE, M.A., M.B., F.R.C.P., Physician to the City of London Hospital for Diseases of the Chest, etc. London: H. K. Lewis: 1896.

OF the vast number of persons suffering at the present moment from pulmonary tuberculosis—it has been estimated at about 150,000 in England and Wales alone—it is not exaggeration to say that many hundreds are allowed to slip downwards to death needlessly. Familiarity with the hopeless features of the *dying* patient has had a doubly bad effect. On the one hand, the failure of all attempts to recover such a patient has led too frequently to a pessimistic conception of the necessary mortality of tuberculosis and a supine negation in respect of treatment. On the other hand, the dread of condemning anyone to the dismal fate has shut the eyes of the physician to symptoms and signs of the disease at an early stage, when treatment may be undertaken with a large measure of hope. The mental state of the physician is mirrored by the lay public, to whom, unfortunately, the scientific truth of the curability of phthisis is far too little known.

There is much need of a crusade against this culpable apathy. The key to the successful treatment of pulmonary tuberculosis is early diagnosis, and for this far more close attention must be given to slight deviations from the normal condition and physical signs. A mere tyro may diagnose the presence of pronounced tuberculosis. The diagnosis of the first changes—which may continue slight for a long time—deserves far more care than is given in our schools of medicine. This is one of the departments of medicine in which exactness can be achieved only by prolonged observation and careful practice of the physical methods. And our schools have still to teach much in this department.

To the treatment of phthisis in the wide sense this is the all-important preface. Thereafter there is abundant room for instruction in the treatment. The fatal coincidence of cough in cases produced by exposure to cold and in pulmonary conditions dependent on quite other causes has led to the adoption of protective measures in tuberculosis, which lack both physiological and pathological sanction. In spite of much that has been said and written by those best entitled to speak, the open-air treatment of tuberculosis is barely ever realised in practice, and so with bathing and many other hygienic measures of first importance. On this score the volume of Dr Ransome comes most opportunely. It is the outcome of long-continued experience and observation, of deep reflection and mature judgment on the part of one who has the highest qualifications for the task. It is especially valuable because the wider physiological and pathological problems involved in the disease and its treatment are placed so conspicuously in the foreground. We have not any work on the subject which occupies quite the same level in this respect, and we commend it to the thoughtful and repeated study of the practitioner of medicine, by whom must be determined, after all, from day to day the successful or unsuccessful issue of the warfare against tuberculosis. If the application of physiological and pathological knowledge were practised more thoroughly, the search for specific lines of treatment would come to occupy its proper place. Success will ever depend largely on ability to follow consistently and persistently "the dictates of medical science."

The work of Drs Harris and Beale is on different lines. It reproduces much valuable information regarding the pathology and treatment of pulmonary consumption, and may be accepted as a fairly complete compendium of present-day views in this department. The chapters on the detection and treatment of early phthisis and chronic, quiescent, or cured disease are excellent, and will repay careful perusal. In detailing "the chief dangers to be guarded against by the sufferer from chronic phthisis," less prominence might advantageously have been given to exposure to cold and more to residence in over-heated or over-comfortable quarters. As a whole, however, the book can be recommended as a safe guide in the conduct of cases of tubercular lung disease.

Diseases of the Chest, Throat, and Nasal Cavities, including Physical Diagnosis and Diseases of the Lungs, Heart, and Aorta, Laryngology and Diseases of the Pharynx, Larynx, Nose, Thyroid Gland, and Œsophagus. By E. FLETCHER INGALS, A.M., M.D., Professor of Laryngology and Practice of Medicine, Rush Medical College, etc. Third Edition, Revised. London: Henry Kimpton: 1896.

THIS is an *omnium gatherum* of much that is useful, but with all the disadvantages which crowding and want of proportion entail. As the title suggests, a large amount of ground is covered

—and some of it well covered—but the discussion of the subjects is most unequal. For example, the entire department of diseases of the heart and vessels is considered in some ninety pages, while two hundred and forty are allotted to affections of the throat, and approximately one hundred and fifty to the nose and naso-pharynx. To give almost the same space to the consideration of the nose and naso-pharynx as is given to the whole of bronchial, pulmonary, and pleural conditions, including pulmonary phthisis, makes one stare. Surely such laryngologists and rhinologists magnify their office! Students and young practitioners will not be helped by so ill-balanced a presentation of pathological and clinical relationships.

The book should have been split into two parts. That on the throat and nose might be published as an attempt at a "complete exposition" (*vide* preface to first edition) of the subject; that on the heart and vessels and chest, in the limited sense, would be better put aside till extended, or published as an outline sketch of possibilities in a field too wide to be traversed by one whose chief interest is evidently elsewhere engaged. If the author will take the matter *ad avisandum*, in view of future editions, he may become the author of two separate works of value and credit, so far as they go in their respective fields, in place of one whose faults of arrangement and perspective are seriously misleading.

Transactions of the Sixteenth Annual Meeting of the American Laryngological Association, held in Washington, 1894. New York: D. Appleton & Co.: 1895.

THE volume of *Transactions* before us shows that the American Laryngological Association continues in a flourishing condition. At the annual meeting twenty-two papers were read and discussed, and although these have already appeared in one of the weekly journals, it is convenient to have them bound together in this more permanent form. While none of the papers appear to be of special outstanding interest, yet they are all worth careful perusal. While we cannot mention all the papers, we may, perhaps, refer to "Nasal Polypus: its Association with Ethmoiditis," by Dr Casselberry; "A Case of Laryngectomy by a Novel Method," by Dr Swain; and a "Discussion on the Accessory Sinuses," as likely to interest our readers.

The Surgery of the Chest. By STEPHEN PAGET, M.A. Oxon., F.R.C.S., Surgeon to the West London Hospital, and to the Metropolitan Hospital. Bristol: John Wright & Co.: 1896.

MR PAGET's work in the special department of surgery dealt with in this book is already recognised, and no one is better qualified to recall to the minds of surgeons the position to which the surgery of the chest has now attained.

The subject is one very specially belonging to the modern era of surgery, and hitherto the literature has been fragmentary and not readily accessible. In the book before us we find not only the work of an independent and scientific surgeon, but a most laborious and compendious digest of the records of the work of others; the result is eminently satisfying to the reader, more especially if he can appreciate a lucidity and grace of diction too rare in medical literature.

The first eleven chapters of the book are concerned with injuries of the chest; among many excellent chapters, that devoted to wounds of the heart may be specially named as illustrating very forcibly the amount of material which the author has manipulated, and that with remarkable ability. The keynote of this half of the book is, "Let the chief thought be for the contents of the cavity, not for the cavity itself."

The chief place in the latter part of the book—on the diseases of the chest—falls naturally to empyæma (and one would specially commend the pages upon the risks and difficulties that may follow the operation); but lung abscess, bronchiectasis, tubercular phthisis, and diseases of the bronchial glands are all considered from the surgeon's standpoint.

Throughout his work Mr Paget rests largely upon clinical experience, notes of his own cases and those of others being frequently introduced when illustrating the subject under consideration; excellent tabular statements upon some of the subjects also find a place in his pages. This enormous mass of clinical material has been analysed most shrewdly, so that each subject is presented to the reader with the facts in connexion with it placed in due perspective, and helpful rules for practice deduced and stated with moderation, yet with decision.

Books such as this, concerned with a limited subject, have very generally that interest which an author's enthusiasm for his subject can compel, and for this quality Mr Paget's work is conspicuous; he carries the reader very pleasantly along with him into what he terms "unfrequented paths" in the field of surgery; and one reads as a romance such pages as those upon the surgery of the heart, and at the end can endorse the author's statement in the preface, that we have reached a stage in this portion of our art beyond which, on our present lines, we can advance no further.

Surgical Emergencies, together with the Emergencies attendant on Parturition, and the Treatment of Poisoning. By PAUL SWAIN, F.R.C.S., Surgeon to the South Devon and Cornwall Hospital, Hon. Fellow King's College. Fifth Edition. London: J. & A. Churchill: 1896.

THE appearance of this, the fifth edition, makes good the claim of Mr Swain's work to a foremost place among books of the kind.

The information expected in such a work is presented in a practical and intelligent way, and with sufficient detail. Some interesting pages, peculiar to this edition, are concerned with the most recent advances in the technique of Intestinal Surgery. The chapter on Asepsis is good, and based largely on Schimmelbusch's most reliable work. We can cordially commend anew Mr Swain's little book.

Deformities of the Foot. By W. J. WALSHAM and W. KENT HUGHES. London: Baillière, Tindall, & Cox: 1895.

Deformities: A Treatise on Orthopædic Surgery. By H. H. TUBBY. London: Macmillan & Co.: 1896.

Affections Chirurgicales des Membres. By Dr POLAILLON. Paris: Octave Doin: 1895.

THE increase of knowledge in special departments of surgery is ample justification for the appearance of these volumes.

Mr Walsham's book on the Deformities of the Foot bears evidence of extensive knowledge of the literature of the subject, and of considerable personal experience, gained for the most part in the Orthopædic Department of St Bartholomew's Hospital. At the same time, it is very dry reading, and as such may be classed with works of reference.

Mr Tubby's work on Orthopædic Surgery is a very useful and readable text-book, which will find favour in the eyes of senior students and practitioners. We must, however, take exception to a number of the illustrations, and especially those depicting curvatures of the spine, which are needlessly exaggerated by unsightly shading.

Dr Polaillon's treatise is the first of a series which is intended to cover the whole range of surgical practice. It is essentially a clinical and statistical record of the cases which have come under his observation as a surgeon in two of the larger hospitals in Paris. A cursory perusal of this, the first volume, reveals the very extensive experience possessed by the author. The method in which the cases are recorded corresponds to that employed by the surgical registrar in the hospitals of this country, so that it is scarcely a book which one would attempt to read through, but rather one to which one would refer for statistical information upon any given surgical disorder, as met with in the extremities.

Diagnosis and Treatment of Diseases of the Rectum, Anus, and Contiguous Textures, designed for Practitioners and Students. By S. G. GANT, M.D., Professor of Diseases of the Rectum and Anus, University and Women's Medical Colleges; Lecturer on Intestinal Diseases in the Scarritt Training School for Nurses; Rectal and Anal Surgeon to All Saints, German, Scarritt's Hospital for Women, and Kansas City, Fort Scott, and Memphis Railroad Hospitals, to East-Side Free Dispensary, and to Children's and Orphans' Home, Kansas City, Mo.; etc. Philadelphia: The F. A. Davis Publishing Co.: 1896.

WITH such qualifications as are above stated, it is not surprising that Dr Gant has written a book upon the rectum and anus. What does surprise one is that so "pure" a specialist should require assistance in the production of his book, yet here two most important chapters are written (fortunately, to our mind) by Mr Allingham.

But, except it be to justify his existence as "Professor of Diseases of the Rectum, etc.," we are at a loss to understand the purpose of his book; it is, doubtless, so far as it goes, a good and sound treatise on a very limited subject, but absolutely deficient in scientific merit; indeed, the author has "not attempted a detailed discussion of theories," yet, even so, his "concise" work extends to 390 pages.

Dr Gant's special message to his time seems to be that railway servants are specially liable to diseased conditions of the rectum, and therefore require the services of an officially recognised "rectal and anal surgeon"!

The 25th "caption" (*sic*) is devoted to the important subject of auto-infection from the intestinal canal, but here the Professor has to call in the aid of his friends to elucidate the rôle of the colon bacillus.

Admitting that the book has in it useful information, we would still congratulate ourselves, and more particularly our students, that we are not yet blessed with rectal and anal professors and their works.

Possessing, as we do, excellent books on this subject in our own tongue, we need not puzzle over the American language, trying to grasp the meaning of such phrases as "it was *him* who demonstrated the fact" (p. 269); "one cannot be too careful in the selection of the kind of piles to inject, for when *it* is done in a promiscuous kind of way" (p. 203); "among the number of diseases to which we are liable there *are* none more common, few so tedious . . . . than . . . . . piles" (p. 181); "nearly all authors vary some" (p. 28); and other passages.

The printing is excellent, the illustrations indifferent, the coloured plates very crude and startling.

Epithelioma Primitif de l'Uréthre. Par MELVILLE WASSERMANN, Laureat de l'Institut (Acad. des Sciences), Docteur des Facultés de Médecine de Paris, etc. Paris: J. Steinheil: 1895.

DR WASSERMANN has presented in this book an exhaustive tabulation of cases of primary epithelioma of the urethra, as occurring in both sexes (being, in his judgment, essentially the same in both), and in Cowper's gland.

This condition is a most rare one, and the work involved in the collection of the material must have been very great.

From a consideration of all the cases obtainable—44 in number—the author is able to indicate the symptomatology and usual course of the disease, its relation to stricture as an etiological factor, and interesting points in the pathology.

There are two records of microscopic examination,—viz., by Oberlaender and Grünfeld.

The characteristic signs seem to be painful and frequent micturition, a peculiar discharge, and sometimes hæmaturia before the micturatory act; the "falling" of the bougie into an excavation behind the stricture, and the occurrence of fistulæ, which may become involved secondarily in the malignant growth; later one finds glandular involvement and an ascending urinary infection; the endoscope gives useful information.

Dr Wassermann's information leads him to pronounce the prognosis to be exceedingly bad, the result of operative treatment being very unpromising.

Œuvres de Léon le Fort, Professor de Clinique Chirurgicale à la Faculté de Médecine de Paris, Chirurgien de l'Hôtel Dieu. Publiées par le Dr Félix Lejars. Tome troisième, Chirurgie. Paris: Felix Alcan: 1897.

This magnificent volume of 799 pages is the most valuable of the series in which are collected the writings of this famous surgeon, whose loss is still felt by French Surgery. The first volume contained his work on hospital and public hygiene. The second was devoted to military surgery. This volume contains the principal contributions to clinical surgery which were delivered to the Faculty of Medicine: his accounts of surgical operations, and instruments. Some of the essays are chiefly interesting from a historical point of view, as, for example, the one tracing the rise and progress of the operation of excision of the knee.

His great treatise on pulsating tumours of the orbit is a masterpiece of research and argument. Other shorter papers give his *obiter dicta* on special operative procedures. The whole work is a monument to an excellent surgeon who knew and appreciated the surgical work of Britain in a manner which is unfortunately rare across the Channel.

Diseases of the Eye. By Eugen Fick (Zürich). Translated by Albert B. Hale, M.D. (Chicago). London: H. Kimpton: 1896.

If the rising generation of practitioners of medicine are not well instructed in the subject of diseases of the eye it cannot be for want of good literature. Another new treatise comes to us, *viâ* Chicago, from Zürich, where ophthalmology has long flourished. The arrangement of subjects in this work differs somewhat from that which is quite usual, and allows of the introduction of very full descriptions of the various diagnostic methods and symptoms. For example, the tests for acuteness of vision, light sense, colour sense, etc., take up nearly 100 pages of careful inquiry and explanation. The diagrams, with a few exceptions, though not so numerous as they might with advantage be, are good; and one feature of the book strikes us as decidedly above the average,—viz., that the treatment suitable to the various diseased conditions is carefully delineated. There is apt, in many treatises, to be so much space devoted to descriptions of microscopic appearances and to diagrams of bacteria that there is very little space for the question of treatment, and so the inquirer who goes to the book for guidance upon his intricate path finds only more difficulties. That is not the case in Fick's book; pathology is briefly but sufficiently indicated, while matters of more importance clinically are more fully entered into. A section, consisting of a few pages, is devoted to the effect of injuries of the eye upon the wage-earning power of the patient, a question which receives too little attention in British manuals. The author seems to have had some bad results in the form of permanent corneal opacity produced by the use of cocain, for he describes that drug as "at times a treacherous friend, since it annihilates the result of many a cataract operation" (p. 252). Such a result we have ourselves never once seen, and we are inclined rather to attribute it to the use of too powerful antiseptic lotions, for he says in another place (p. 352) that before operation he wipes the eye with a solution of corrosive sublimate, 1–1000! Fick seems to have a curious notion of the duties of parents, for he writes (p. 375) under the head of Myopia,—"It is the parents' duty to see that the children avoid all reading (novels!) and writing which is not indispensable for their advancement in school. All these rules must be doubly enforced if myopia is already present." We may be mistaken, but it seems to us that a very important part of a boy's education is the reading of books such as are not included in school routine. The boys of Zürich will be much to be pitied if Fick becomes king!

The work of translation has, on the whole, been well done; but what good end is served by spelling sulphate "sulfate"? We do not admire the use of such expressions in a serious work as "bad luck," "a clap," etc.; "peri corneal" is a mongrel word, which should never find a place in any standard work. The book is well calculated to be the friend, often consulted, of an enlightened practitioner.

Treatise on Diseases of the Eye. By D. B. St John Roosa, M.D. New York: William Wood & Co.: 1894.

It is apt to be a pity when a successful practitioner gets it into his head that it is his *duty* to publish a book on his favourite subject. If it is his *pleasure* to do so, the book has a chance to be a good one, but alas for the result when the author says in his preface,—"I have not deemed that my debt to the profession could be even approximately satisfied, nor my own reputation as a teacher, whatever that may be, justly settled unless I"—publish a treatise. Dr Roosa trusts that the book "will be found a complete and safe guide to the practitioner." Unfortunately for his reputation, it is neither the one nor the other, for its serious incompleteness makes it very unsafe. To take an example. Under the head of Detachment of Retina no mention whatever is made of the possibility of a choroidal tumour being present, and far less are the points in diagnosis indicated. In the thirteen lines, too (in a book of 600 pages), devoted to an imperfect and inaccurate description of glioma no mention is made of pseudo-glioma, nor of any means of diagnosis. Retrobulbar neuritis has not received even a casual allusion, nor glaucoma secondary to iritis, nor dermoid cyst, nor several of the eye lesions in diabetes, nor cortical cataract, nor disseminated choroiditis, nor diphtheritic paralysis of accommodation, nor a round dozen of other important conditions. A book with such omissions can be no safe guide. Descriptions of certain other diseases are very imperfect besides those mentioned, notably interstitial keratitis, gonorrhœal conjunctivitis, and zonular cataract. Dr Roosa has no great faith in retinoscopy, and he is well entitled to his opinion, but as requiring no impedimenta it is a method of great utility to the general practitioner, who cannot be expected to provide himself with an expensive and cumbrous ophthalmometer. Yet Dr Roosa does not describe the shadow test, and devotes ten long pages to the ophthalmometer in a book which is addressed largely to the general body of the profession. One point in the book we cordially agree with, which is, that our author has little belief in partial tenotomies and in the evils of microscopic degrees of hypermetropia. At the close of the book there is a glossary, twenty-six pages long, giving the derivation, but not the explanation, of a vast number of terms, many of which appear to have been invented for the purpose of displaying a morbid form of erudition. In ophthalmology we have "jawbreakers" enough, but did any living man ever hear the like of argamblyopia, dacryagogatresia, myopodiorthoticon, or ophthalmoxygomatogramma?

Skiascopy. By Edward Jackson, M.D. Second Edition. Philadelphia: The Edwards & Docker Co.: 1896.

Dr Jackson is an acknowledged authority upon skiascopy, or retinoscopy, as the test is more frequently called in this country, and all who already practise and trust in this method of estimation of the refraction will do well to study his manual. It is short, being only 105 pages in length, clear in its statements, freely illustrated with neat diagrams, and as comprehensible as can well be, considering the inevitable complexity of the subject. It will be admitted that Dr Jackson is an enthusiast on skiascopy, but he does not force his views unduly; we cannot avoid the conclusion, however, that he applies his favourite method to an extent which is quite uncalled for. This we can say frankly, for we are ourselves in the constant and daily habit of employing the mirror for the estimation of refraction. We fail, however, to perceive the gain which he obtains in the ordinary clinical application of skiascopy from alteration in the position of the source of illumination backwards and forwards, as he recommends should be done. The author seems, on the whole, to prefer the plane mirror, though he does not use it to the exclusion of the concave. We cordially recommend the treatise to all interested.

Journal of Eye, Ear, and Throat Diseases. Published by the Staff of the Presbyterian Eye, Ear, and Throat Charity Hospital, Baltimore, U.S.

THERE are one or two interesting papers in this little pamphlet—the second issue of a new quarterly magazine—which show that the surgical staff of this hospital keep themselves well abreast of the questions of the day in the various "ologies" in which they severally practise. The first paper of all is of special value, since it represents the results obtained by the testing of the visual powers of the children in the public schools of Baltimore. Another interesting article deals with the extraction treatment of myopia.

Twentieth Century Practice: An International Encyclopedia of Modern Medical Science. Edited by THOMAS L. STEDMAN, M.D. Volume VI.: Diseases of the Respiratory Organs. London: Sampson, Low, Marston, & Co., Limited: 1896.

THE sixth volume of this Encyclopedia is devoted to the Diseases of the Respiratory System, from the nose downwards. It certainly is comprehensive, for the first pages are devoted to affections of the skin of the nose, which would have been much more suitably placed in Volume V. Lupus is here granted three pages, and mild measures are advocated in mild cases, a very doubtful policy. The sooner the profession cease to treat such mild cases with cod-liver oil, etc., the better it will be for the public. It is interesting to find that Dr Prosser James does not approve of the galvano-cautery, but prefers chemical caustics or actual removal with the knife in hypertrophic rhinitis.

Dr Moure, Bordeaux, has two carefully considered and readable articles on Diseases of the Naso-pharynx and Pharynx, and on Diseases of the Tonsils. The section on Diseases of the Larynx is by Dr Bosworth, New York, a long and well-illustrated article, which goes fully into the subject. The first article from a Scottish source appears in this volume,—on Diseases of the Trachea and Bronchial Tubes, by Sir Thomas Grainger Stewart and Dr G. A. Gibson. The article is a very fair discussion of the subject, with a good bibliography, and containing a number of simple and useful prescriptions for the young practitioner. The volume ends with Diseases of the Lungs (excluding croupous pneumonia and tuberculosis), by Dr Winslow Anderson of New York.

The international character of the volume is a little disappointing; there is a good deal of overlapping, and the division of the subjects leaves at times something to be desired. The articles, if not brilliant, for the most part express sound views, and are valuable contributions to the subject of which they treat.

Kirkes' Handbook of Physiology. By W. D. HALLIBURTON, M.D., F.R.S., Professor of Physiology in King's College, London. Fourteenth Edition. London: John Murray: 1896.

OUR old friend "Kirke," with, like the Irishman's gun, a new stock, lock, and barrel, deserves commendation. It is a thoroughly well-proportioned text-book, and appears in all respects well up to date. Believing as we do that in teaching physiology the student's reasoning faculties should be appealed to and trained, we cannot altogether approve of the thoroughly didactic style adopted, and we cannot but feel that the adoption of such a style leads to many important questions being dismissed without the consideration they deserve. So far as we can see, however, the great facts of science are clearly and succinctly stated. Undoubtedly the book will prove of service to students of elementary physiology.

Anregung zur Reform der Physiologie des Menschens. von Dr F. JEZEK. Stuttgart: Hobbing u. Büchle: 1896.

IF this book is a jest it is a jest of the real heavy German kind, unenlivened by the wit and humour which alone could have justified its infliction upon the reader. Dr Jezek's travesties of physiology, absurd as they are, are not even amusing. In reading these pages one feels like watching a lunatic butt his head against a stone wall. One cannot help being sorry for the lunatic; but the procedure becomes monotonous, and one develops an unholy hope that the head may finally collapse. The silly little experiments with which he attacks the well established facts of the science are as much calculated to influence them as the head of the softest-headed lunatic is able to affect the stone wall.

The one element of satisfaction in glancing at the book is the hope it affords that at some future day a really amusing burlesque physiology may be produced.

A Text-Book of Bacteriology. By GEORGE M. STERNBERG, M.D., LL.D. London: J. & A. Churchill: 1896.

WE have already reviewed at considerable length the author's larger *Manual*, which appeared in 1892. In the preface the author says—"For the benefit of students of medicine and others who do not care especially for detailed descriptions of non-pathogenic bacteria and the extensive bibliography contained in the *Manual*, this text-book of bacteriology is now published." It comprises that portion of the *Manual* above referred to as printed in large type, revised to include all important additions to our knowledge of the pathogenic bacteria since the original date of publication. There is thus nothing to add to our original notice of the work, except that the author has spared no pains to bring it thoroughly up to date, and to render it a thoroughly reliable guide to the student and practitioner of medicine.

Physics for Students of Medicine. By ALFRED DANIELL, M.A., LL.B., D.Sc., F.R.S. Ed. London: Macmillan & Co., Limited: 1896.

TEACHERS of what may be called the preliminary sciences of medicine—Physics, Chemistry, and Biology—are too apt to forget why the medical student is studying these subjects, and to ignore the fact that the mental training which these sciences are intended to impart may be obtained just as well from those portions which bear more directly upon medical science as from those unconnected with it. Hence the unfortunate youth has too often forced upon him at the commencement of his curriculum a mass of details which even his uneducated mind can perceive has no possible bearing upon his future studies.

No one is better fitted than Dr Daniell to undertake the preparation of such a book as the present; for not only are his knowledge of physics and his powers of lucid exposition vouched by his larger *Text-book of Physics*, but he has had the great advantage of a training as a teacher of physics to medical students. He has throughout the work kept clearly before him why the student must take up physics at the commencement of his professional studies, and he has thus succeeded in preparing a book which must prove of the greatest value.

But *Physics for Students of Medicine* should also prove a most acceptable work to practitioners of medicine, who too often do not possess a very profound knowledge of this important subject. It is impossible to make the study of physics easy, but Dr Daniell's terse and lucid style, and his happy examples and illustrations, go far to smooth the thorny path. We wish the book all the success it deserves.

A Manual of Clinical Diagnosis. By CHARLES E. SIMON, M.D. London: Henry Kimpton: 1896.

DR SIMON wishes to stimulate his professional brethren in the study of clinical chemistry and microscopy, which he holds to be much neglected even by hospital physicians. We agree with him in this, but the book he gives us will not, we fear, greatly advance the object. It is certainly beautifully printed on faultless paper, but the subject-matter is not strong. Take, for example, the section on the urine; there are numerous inaccuracies and fallacies which should not have appeared in such a book had the author gone to a recent and reliable source for his information. The division of oxaluria into lean and fat varieties is, like Pharaoh's kine, rather ancient history.

The book is freely illustrated. Many of the diagrams and plates are good, but some of the original ones are very poor; thus the plate on the nitric acid test as applied to the urine is almost grotesque.

The volume is on the same lines but a very long way after the older work of Von Jaksch.

Transactions of the Obstetrical Society of London, Vol. XXXVII., for the Year 1895. Edited by WILLIAM DUNCAN, M.D., and PERCY BOULTON, M.D. London: Longmans, Green, & Co.: 1896.

IN the annual volume of the London Obstetrical Society's Transactions the most noteworthy papers are,—"Observations on the Temperature, Pulse, and Respiration during Labour and the Lying-in," by Drs Probyn-Williams and Leonard Cutler; "The Disintegration of Organic Tissue by High Tension Discharges," by Dr Inglis Parsons; "On the Common Form of 'White Leg' after Confinement," by Dr Hubert Roberts; "Placental Polypus," by Dr Alban Doran; "Variations in Height of the Fundus Uteri above the Symphysis during the Puerperium," by Dr T. G. Stevens; "Certain Micro-organisms of Obstetrical and Gynecological Interest," by Dr G. Drummond Robinson; and the "Uterus Didelphys," by Dr Arthur Giles. The annual address by Dr Herman was chiefly retrospective of the work of the preceding session; it also contained graceful obituary notices of Leishman, John Clay, William Goodell, and others. The inaugural address by the President (Dr Champneys) was an attempt to justify the Society's procedure in the matter of midwives and their diplomas.

Other interesting items of the Society's work were the exhibition of a patient after symphysiotomy, by Dr W. S. A. Griffith; a note on an indisputable case of complete tubal abortion, by Dr Cullingworth; a paper on ovariotomies in the aged, by Dr Remfry; and an illustrated description of a fœtus acardiacus mylacephalus, by Dr Doran. As usual, the *Transactions* are clearly printed and well illustrated, and the contents show many signs of continued vigour on the part especially of the younger Fellows of the Society.

Transactions of the American Pediatric Society. Vol. VII. (Reprinted from the *Archives of Pediatrics.*) Edited by Floyd M. Crandall, M.D. New York: 1895.

This volume begins with an interesting and amusing Presidential Address by Dr Forchheimer, on "Infancy," a pediatric poem in six books, written in the eighteenth century by Dr Hugh Downman, an Edinburgh graduate, and a friend of John Hunter's.

Then follow a large number of short articles read before the Society, accompanied by the discussions which took place on them. Several of these deal with Diphtheria and its treatment by Antitoxin, which seems to succeed in America to very much the same extent as it does in Europe. Various aspects of Scarlet Fever are also taken up by several of the writers.

The other papers are on a considerable variety of subjects, and they, as well as the discussions to which they gave rise, will be found well worthy of study.

The Pharmacopœia of the Evelina Hospital for Sick Children, Southwark. Second Edition. London: J. & A. Churchill: 1896.

This little work is interesting as embodying the prescribing experience of one of the most favourably known children's hospitals in the kingdom.

It seems, on the whole, carefully got up and reliable, and it contains many useful prescriptions. We are disappointed, however, to find no guide to the prescription of such a largely used drug as phosphorus; and surely 1½ mins. of solution of hydrochlorate of morphine (p. 17) is a dangerous dose for a baby of six months.

Chemical Notes and Equations, Inorganic and Organic. By G. H. Gemmell, F.I.C., F.C.S. London: Baillière, Tindall, & Cox: 1896.

This volume gives, in a condensed form, many important facts and equations specially useful to students.

Medical and Surgical Reports of the Boston City Hospital. Sixth and Seventh Series. Edited by G. B. Shattuck, M.D., W. T. Councilman, M.D., and H. L. Burrell, M.D. Boston: Published by the Trustees: 1895 and 1896.

These reports are full of interesting cases, well told. We would draw particular attention, however, to the paper describing the Routine Methods employed in the Boston City Hospital for securing Surgical Asepsis, by Paul Thorndike, M.D., and a report on the Bacterial Investigations of Autopsies, by J. H. Wright, A.M., M.D., and W. R. Stokes, M.D., in the first volume, and to papers on Pseudo-Malignant Œdema and Treatment of Typhoid Fever with Typhoid Thymus Extract in the second.

Formulaire Aide-Mémoire de la Faculté de Médecine et des Médecins des Hôpitaux de Paris. Par le Dr FERNAND ROUX. Quatrième Edition. Paris: G. Steinheil: 1896.

THIS is an interesting work, and gives an account of the general treatment of disease in France.

Cod-Liver Oil and Chemistry. By F. PECKEL MÖLLER, Ph.D. London: Peter Möller: 1895.

THE first portion of this work, namely, that part which treats of cod-liver oil, will be read with great interest and much profit. The second part, on the law of Atomic Sinking, diagrammatically illustrated, is very ingenious, but will only be of interest to the professional chemists.

The Indigenous Drugs of India: Short Descriptive Notices of the Principal Medicinal Products met with in British India. By KANNY LALL DEY, Rai Bahadur, C.I.E., F.C.S., etc., assisted by WILLIAM MAIR, Associate of the Pharmaceutical Society of Great Britain. Second Edition. Revised and Entirely Re-written. Calcutta: Thacker, Spink, & Co.: 1896.

THIS is a very able and interesting work by a most distinguished native of India. The book contains much valuable information, and will be of great use, not only to all practitioners in India, but to all who take an interest in the native medical plants of India, and those introduced plants which have been cultivated with so much success in India, as the cinchona.

It is a work which deserves a wide circulation.

Kemp & Co.'s Prescribers' Pharmacopœia: A Synopsis of the more recent Remedies, Official and Unofficial, with a Therapeutic Index. Third Edition. Bombay: Kemp & Co.: 1896.

WE had occasion to speak most favourably of the second edition, and we are glad to see that the book has reached a *third* edition. It contains much valuable information, and will be found of great use to the busy practitioner who wishes to be conversant with all the newer remedies.

Braithwaite's Retrospect of Medicine. Vol. 113, January to June 1896. London: Simpkin, Marshall, Hamilton, Kent, & Co., Limited.

THE latest volume of this publication maintains the reputation of the series as a sufficiently complete guide for general practitioners in their effort to keep abreast of the march of scientific medicine.

The antitoxin treatment of diphtheria and the uses of Röntgen photography are among the interesting topics to which attention is directed in the volume.

Disease and Defective House Sanitation: Being two Lectures delivered before the Harveian Society of London. By W. H. Corfield, M.A., M.D., etc. London: H. K. Lewis: 1896.

The medical officer of health or well-informed practitioner who turns to this booklet for information is not likely to find anything new. Even the illustrations have done duty elsewhere. But the lectures must have pleased Dr Corfield's audience, else their publication would not have been requested. They show, what was generally known before, that Dr Corfield is a distinguished expert and consultant on the sanitary condition of houses, and that he is sometimes summoned to Scotland.

Post-Mortem Examinations in Medico-Legal and Ordinary Cases. By J. Jackson Clarke, M.B. Lond., F.R.C.S. London: Longmans, Green, & Co.: 1896.

This is a very useful little work intended to help students to acquire a knowledge of the details of post-mortem work, and to assist the practitioner to refresh his memory when called upon to exercise an art that may have become unfamiliar by reason of long absence of the need of practising it. There are valuable hints on antiseptic precautions, on the legal aspects of post-mortem examinations, and on the granting of death certificates. A careful study of its pages should tend to prevent many of the mistakes that are from time to time exposed in our courts of justice.

A Manual of Infectious Diseases. By E. W. Goodall, M.D. Lond., and J. H. Washbourn, M.D. Lond. London: H. K. Lewis: 1896.

Drs Goodall and Washbourn have made an excellent addition to the text-books. After a general introduction on Fever, they give a very fair and succinct account of present-day doctrines regarding bacteria and their pathogenic properties, immunity, prophylaxis, and modes of disinfection; and before passing on to the consideration of the specific fevers, two useful chapters on rashes simulating those of the fevers, and on sore throat, are inserted. The accidental rashes of some of the fevers, *e.g.*, typhoid, might also have been dealt with. These, though rare, are extremely puzzling, and practitioners have sometimes been led to diagnose as measles what has afterwards proved to be enteric fever.

Under the head of Diphtheria the authors use croup as a term indicative of a particular symptom, viz., the obstruction of the air-passage at or about the larynx giving rising to dyspnœa. To those who have been taught that diphtheria and croup are separate entities this may seem too sweeping; but inasmuch as it is now practically admitted that membranous croup is simply laryngeal diphtheria the authors' use of the term is perfectly justifiable, and will "clear the air."

The photographs of bacteria are excellent, and the diagrams illustrating the distribution of the various rashes ought to prove helpful.

The Laboratory Text-book of Public Health. By WILLIAM R. SMITH, M.D., D.Sc., F.R.S.E., etc., etc. London: Henry Renshaw: 1896.

PROFESSOR SMITH has thrown into book-form and dedicated to the Marquis of Londonderry, as chairman of the London School Board, certain sheets of instruction which he has found useful in preparing candidates for the Public Health Diplomas. The work is very well printed, and the illustrations clear and pleasing, and if the information is rather meagre for the medical officer of health it will no doubt be found sufficient for the passing of examinations south of the Tweed.

The Imperial Health Manual: Being the Authorized English Edition of the Official Health Manual issued by the Imperial Health Department of Germany. Edited by ANTONY ROCHE, M.R.C.P.I., etc., Professor of Medical Jurisprudence and Hygiene in the Catholic University of Ireland. Dublin: Fannin & Co., Ltd.: 1896.

PROFESSOR ANTONY ROCHE has done good service in issuing this work in English dress for popular use. The introduction alone is worthy of being brought under the notice of the public, who seldom stop to enquire how costly disease may be. The volume has two defects,—the exclusive use of the metric system without even a conversion table, and the absence of an index. Even the elaborate table of contents does not compensate for this want.

The Sixteenth Annual Report of the Medical Officer of Health of the Burgh of Crieff (Dr JAMES GAIRDNER), 1895.

Dr GAIRDNER can in no respect be accused of being mealy-mouthed. On the first page he writes:—" An idea seems to exist that the facts in my annual and other reports are slightly exaggerated in some instances, but I would have you disabuse yourselves of this idea."

The condition of Crieff as respects its byres, milk-shops, and piggeries is apparently far from what it ought to be; nor does the author "approve of the animals killed" (for food), "the circumstances under which they are killed, or the method of killing."

He enters somewhat fully into the effects of the fumes given off in fusing old lead, and describes the percentage of lead, manganese, and iron which is found on an analysis of the same. From these fumes, vegetation, animals, and man all suffered. In the case of the latter, the diseases noted by Dr Gairdner were "rheumatic, digestive, respiratory, circulatory, nervous, genito-urinary, and inflammatory,"—in fact, almost all the ills flesh is heir to.

The blacksmith and his forge also come under the ban of the writer, and what we were not prepared for is to read:—"I am of opinion that the business of a blacksmith is an offensive process of trade . . . due to the fumes driven into the air by the bellows," etc.

The common lodging-houses in the burgh are said to be overcrowded, and the housing of the working classes is not quite what it should be.

The Local Authority of Crieff have evidently work in front of them.

The Johns Hopkins Hospital Reports. Report in Gynecology, III. Baltimore: The Johns Hopkins Press: 1895.

A LARGE quantity of valuable scientific work is being carried on in the Johns Hopkins Institution, and published in the Reports and Bulletin. The present part contains three capital bits of research work by Dr Thomas S. Cullen, on hydrosalpinx, on post-operative septic peritonitis, and on tuberculosis of the endometrium. The last-mentioned paper will serve as a worthy appendix to Dr Whitridge Williams' classical monograph on genital tuberculosis in this same series of Reports. The part devoted to hydrosalpinx (sixty pages) is well worthy of reference, is beautifully illustrated, and has a useful bibliography. We note that the author regards hydrops tubæ profluens as hydrosalpinx simplex, with this solitary difference, that the uterine end of the tube is patent.

King's College Hospital Reports. Edited by NESTOR TIRARD, M.D., F.R.C.P.; W. WATSON CHEYNE, F.R.C.S., F.R.S.; JOHN PHILLIPS, M.A., M.D., F.R.C.P.; and W. D. HALLIBURTON, M.D., F.R.S. Vol. II. (Oct. 1, 1894 to Sept. 30, 1895). London: Adlard & Son: 1896.

THE second volume of these Reports carries out the promise of the first, which appeared last year. Amongst the papers, apart from the purely local information, are several worthy of perusal, such as Antitoxines and Antitoxin Treatment, by A. T. Hewlett, M.D., and Diagnosis and Prognosis in Cases of Valvular Disease, by Sir Hugh Beevor. Reports of Cases of Interest in the different Wards, and the statistics of the Hospital, fill up the rest of the volume. The Reports are worthy records of good work done during the year.

Janus: archives internationales pour l'histoire de la médecine et la géographie médicale, paraissant tous les deux mois. Directeur, Dr H. F. A. Peypers. Première Année, Première Livraison: Juillet-Août, 1896. Parkweg 62, Amsterdam.

Probably few medical readers of the present day know that some fifty years ago two successive but unsuccessful attempts were made by Henschel to establish an international journal representing the historical and geographical aspects of medicine. This journal was called *Janus,* so that the present effort is really *Janus redivivus.* All this and much more concerning the journalistic history of the history and geography of medicine is told us by Professor Stokvis in an introductory article in the new journal, the full title of which is found above. It seems strange in these days of medical journalistic specialism that up to the present time no organ representing these two important and intensely interesting subjects of study should have been successfully inaugurated. That they are subjects of unusual interest is borne out by the table of contents of the present issue. In it we read of Jenner and variolation and vaccination, of leprosy in Iceland, of protection against the venom of serpents, of the early history of lanolin, of diphtheria in Denmark, of an early anticipation of the Pasteur doctrine, and of a medical jurist of three hundred years ago (Roderic a Castro). The journal, further, fully deserves the title "international," for it contains papers in three languages, by such authors as Calmette of Lille, Adamkiewicz of Vienna, Husemann of Göttingen, Carlsen of Copenhagen, and Peypers of Amsterdam. We can heartily recommend *Janus* to those who are interested in the more purely literary side of our professional work; in it they will find much that will interest, and not a little that may suggest new lines of thought and enquiry.

Galen: Two Bibliographical Demonstrations in the Library of the Faculty of Physicians and Surgeons of Glasgow. By James Finlayson, M.D. Glasgow: Macdougall: 1895.

In this pamphlet of 55 pages Dr Finlayson manages to give us a graphic sketch of Galen as a philosopher, scientific observer, and physician. His works in the original Greek fill five folio volumes of the Aldine and Basle editions. The only translation into English is the old version of Gale, published in 1586. There is a French translation by Daremberg, which, however, does not include all Galen's treatises. Born in Pergamum, Galen lived between 130 and 200. He was physician to the Emperor Marcus Aurelius. He showed that the aorta contained blood by cutting down upon it in a living animal, applying a ligature at two places, and then opening the intervening portion of the vessel. He also demonstrated the function of the ureters by applying ligatures. He knew that a section of the spinal cord up to the centre only affected the inferior parts on one side with paralysis. He also describes the muscles of the eye, and the crossing of the optic nerves. He was obliged to snatch observations on osteology from the unburied bodies of robbers, or from skeletons washed out of cemeteries by a flood; but he made dissections of animals, especially monkeys. He was an acute observer of general symptoms, and an adroit practitioner. He got a fee of about 400 guineas for curing the wife of the Consul Boethus.

Very few of us have the time and the learning to study the books of the great physicians of antiquity; but all might be grateful to Dr Finlayson for giving us so life-like a portrait of the famous court physician of Imperial Rome.

Claude Garton: A Story of Dunburgh University. By THOMAS J. HENRY, F.R.C.S.E., Author of *Deuteronomy Smith.* Edinburgh: E. & S. Livingstone: 1897.

THIS is a severely realistic but fairly accurate account of medical student life in Edinburgh. A somewhat flimsy and melodramatic plot, with a hero and heroine, villain and murderer, of the oldest and crudest type, gives opportunity to the author to describe some of his teachers with an accuracy which, while saving the necessity for invention, certainly borders on personalities.

The well-known name of Krumm, Professor of Chemistry, hardly needed a blue skullcap to conceal his identity. Sir William Verser—Professor Frean, who, had he not been a teacher of surgery beloved by junior students, would have been a moral philosopher, and Dr Baird, who was inseparable from a small black bag, are all described with a minuteness that leaves nothing to the imagination. Fortunately all is hero-worship, not an unkind word is said of any of the favourites, and even the little ways of one or two less beloved preceptors are gently hinted at rather than coarsely expressed. There is an admirable description of a Rectorial election, and the torchlight procession and the nearly inevitable row. A chloroform case at the dispensary is described with vividness, and so accurately that it shows the author is an expert and scientific anæsthetist. An operation on the hero, with antiseptic precautions, may be interesting as a record of the surgery of 1896. But surely the medical students of this day are not the terrible "bounders" the author makes them out to be. Of course there is a charming nurse and a fascinating barmaid who are rivals for the hero's hand. There is a considerable amount of tall writing about the love affairs, which is disappointing, as the simple descriptive bits are well done. Edinburgh students may possibly recognise some of the student types, and it may interest some to have this memorial of their University.

The Art of Cooking for Invalids, in the Home and in the Hospital. By FLORENCE B. JACK, author of "The Art of Laundry Work." Edinburgh: T. C. & E. C. Jack: 1896.

THIS is an admirable little book, practical and useful. It contains a host of recipes of all sorts, precisely stated in accurate weights, and full directions in clear, simple language. An approximate estimate of the cost of each diet is given, which will greatly add to its value for young housekeepers. A trained nurse and an experienced housekeeper who have looked through it give this little work their full approval.

The Guide to South Africa. For the use of Tourists, Sportsmen, Invalids, and Settlers. Edited annually by A. S. BROWN and G. G. BROWN, for the Castle Mail Packets Company. London: Sampson Low: 1896.

A DETAILED review of this book is unnecessary. The want it is intended to supply is well supplied, and all proceeding to South Africa will find it indispensable, whilst to the physician at home the notes on climate and health in the various districts will be of considerable use. This edition, 1896–97, is well up to date.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

THE first Meeting of the seventy-sixth Session of the Society was held at 117 George Street on Wednesday, November 4, at 8 o'clock.

There was a most encouraging attendance of Members, the young and active workers appearing in full force, while a front bench of older Members showed that some, at least, of the seniors still remembered the Society where in their youth they had learned so much. The President, Dr Argyll Robertson, occupied the chair.

The first patient exhibited was a most interesting and unique case of ADULT RICKETS by Dr James. A dwarfish litttle creature, that might have been any age over 10 but was 20, exhibited the characteristic chest symptoms and a well marked rosary. Röntgen ray photographs of the bones of his hands and of his knee joints indicated deficiency of earthy material. Dr James pointed out the salient features of the case in a most interesting and instructive manner.

Mr Cathcart was to have exhibited two cases of SECONDARY

SYPHILIS FROM EXTRA-GENITAL CHANCRE. Unfortunately, neither of them was able to appear; but Mr Cathcart gave a short account of the circumstances of the infection; one was from a cut on the knuckle in a fight, the other was an infection of the tonsil.

Mr Caird then showed a patient in whom he had performed GASTRO-ENTEROSTOMY for malignant stricture of the pylorus, which could not be excised, and another in which he had excised the pylorus. In both, the operation was performed early. The patients were fed early. Both had gained weight with great rapidity, and looked fairly well.

Dr Byrom Bramwell then showed a well-marked example of the CACHETIC CONDITION supposed to depend on inherited syphilis, and her sister, whose case he believed to be one of general paralysis. The second patient was 20 years of age, and the diagnosis did not seem to be at all a certain one.

Dr Bruce then gave a most interesting LANTERN DEMONSTRATION OF A DESCENDING TRACT, hitherto unknown and undescribed, in the posterior columns of the spinal cord in the lumbo-sacral region. It occurred in a case where the cord was crushed in the dorsal region, and resulting descending degenerative changes enabled the new tract to be traced with great accuracy. The work had been done by Drs Bruce and Muir. The demonstration, which was very convincing, was received by the Society with much applause, and is another example of the admirable original work done by Dr Bruce in the region of the spinal cord.

Dr Bramwell then showed by the lantern, pictures of some cases of PSEUDO-HYPERTROPHIC PARALYSIS AND MYOPATHIC ATROPHY. Most of the patients had been already shown to the Society. He then exhibited some photographs, prepared by Drs Muir and Leith, of the muscular changes found in the above conditions.

Dr James then read the first paper of the evening, ON THE TREATMENT OF CRIME. It was full of the breadth of view, philosophical instinct, and originality of thought which characterise all the work done by its talented author. He treated crime in its relation to the environment of the criminal, comparing it with diseases such as insanity, epilepsy, and hysteria. He showed how, like disease ones, criminal statistics can be calculated to averages. He pled specially for treatment of the criminal by punishment which should not merely be punitive and deterrent, but be curative. He also pressed the importance of education in mental diagnosis of all those who have to deal with crime and criminals.

The President having expressed for the Society their appreciation of the importance and interest of the paper, suggested that remarks on it should be short, and called on *Sir Henry Littlejohn.* In a few laudatory sentences he agreed with Dr James as to the importance of educating our prison officials, judges, and others who have to do with criminals, and expressed his hope that the paper would be published.

Dr Clouston then, in his usual eloquent and impressive style, pled the cause of the criminal as a diseased person needing treatment, and showed how his want of inhibition made him resemble the lunatic.

Dr Batty Tuke took an opposite line,—rather objected to the theory that the criminal class was a weak and deficient one; cited the excellent mental and bodily character of his friends whom he had met in Australia, descendants of convicts and ticket-of-leave men, and rather left the meeting under the impression that the criminal did not differ much from the rest of us who were still out of jail, but was only unlucky in having been found out.

Colonel M'Hardy was then called on by the Chair. He explained some of Dr James' curves of criminal frequency, by Glasgow Fair holidays as causing a rise, and poverty produced by frost causing a fall, in the amount of crime, as it prevented the victim having cash to spend in drink.

Dr James briefly replied.

The Secretary, Dr Graham Brown, then read an abstract of a long and exhaustive paper by Surgeon-captain Bedford, I.M.S., ON POISONING IN THE PUNJAUB, illustrated by specimens. The lateness of the hour prevented any discussion on this valuable contribution to medical jurisprudence.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

OXALATE OF CERIUM IN THE GASTRIC CRISES OF TABES DORSALIS.—Ostankow (*Wein. klin. Wochenschr.*, No. 24, 1894) has found this drug, so highly recommended by Simpson in hyperemesis gravidarum, shorten the crises of tabes dorsalis. In some cases under its use, in doses of 0·5 to 0·15 g. three or four times daily, the frequency of the vomiting fell on the second day from 200 times in the twenty-four hours to six or eight, and still lower on the third day. As the vomiting, the nausea, and the parched thirst were greatly diminished, a material improvement took place in the patient's psychical condition, and nourishment in small quantities could be retained—a point of very great importance.—*British Medical Journal*, August 15, 1896.

NITRO-GLYCERINE IN ANGINA PECTORIS.—Schott of Nauheim (*Therapeut. Monatshefte*, March 1896) has found that—(1), it acts best in pure angiopastic forms on angina pectoris, not so well in cardiac pain due to aortic disease, and still less in stenocardia due to myocarditis, fatty or "weak" heart. It has very little action in the cramp-like pains due to aortic aneurism, and is often of no use at all in the pure motor neuroses of the heart; (2), its action on different people can never be predicted; (3), if toxic symptoms appear after a small dose, it is best to discontinue the drug altogether; (4), if no toxic symptoms appear, gradually increasing doses can be given safely; (5), the form of administration is important, as Schott has found it to be most active given in a liquid medium, and combined with tinct. capsici, spir. rect., and aq. menth. pip.; (6), it acts surprising quickly, and its action is generally at its height after two or three minutes; (7), it is generally necessary, when several small doses are without effect, to give larger doses,—in some cases a single large dose acts best; (8), it is certain that much more than 1 mg. ($\frac{1}{65}$ of a grain) can be given as a single dose.—*British Medical Journal*, August 8, 1896.

THE EFFECT OF ALKALINE WATERS.—Monaco (*Il Policlinico*, July 15, 1896), examining the effects of the waters of Sangemini, containing calcium bicarbonate, finds that there is no true diuretic action; that the processes of digestion and absorption are increased, as shown by the notable diminution of nitrogen contained in the fæces; on the other hand, the nitrogen is increased in the urine, indicating increased oxidation of nitrogenous substances. Both calcic and sodic bicarbonate waters decrease the amount of uric acid in the urine, and they do this, according to the author, by lessening the formation of the acid.—*British Medical Journal*, August 15, 1896.

THE BACTERICIDAL ACTION OF THE X RAYS.—De Renzi (*Gazz. degli Osped.*, Aug. 30, 1896), in view of the fact that some observers have credited the X rays with bactericidal action, publishes the results of his experiments in the same direction, which show that no such germicidal power is possessed by these rays. The bacilli experimented on were the bacilli tuberculosis, the bacilli of Finkler, and the cholera organism. In no case was any material difference noticed in the growth or virulence of the cultures. Three tuberculous patients were exposed to the X rays for various periods, but in each case no good results were obtained; indeed, the patients seemed worse.—*British Medical Journal*, Oct. 31, 1896.

THE USE OF OXYGEN IN DIABETES.—In *Il Policlinico* Ascoli reports that he has obtained good results by using oxygen inhalations in diabetes. To a man 60 years of age he gave large quantities of the gas each day for a little over three months. During this time the quantity of urine diminished, its specific gravity decreased, the quantity of sugar was reduced to a small proportion, and in two months entirely disappeared. Three months later the sugar had not reappeared, although the patient had gone back to a diet of starch foods. He had also gained greatly in weight (*Revue Internationale de Médecine et de Chirurgie,* April 1896).—*The Therapeutic Gazette,* October 15, 1896.

THE TREATMENT OF PNEUMONIA BY LARGE DOSES OF DIGITALIS.—Barth (*Sem. Méd.,* July 22, 1896) advocates this treatment in certain cases of pneumonia. Traube was the first to recommend digitalis in 1850, and Hirtz upheld its use most strongly; but the method was forgotten till Petrescu of Bucharest again brought it forward. He gives as much as 124 grains of the powdered leaves in an infusion a day for two to four days, the mortality among 825 cases so treated being 2·06 per cent. He never saw any signs of digitalis poisoning. After one day of this treatment, the temperature falls 1° to 3° C., and after two or three days 5° or 6° C. Filk, giving 30 to 45 grains a day, had very good results, the fever generally ending by lysis; occasionally, however, symptoms of poisoning supervened. Heuppel in 1892 treated 15 cases with 45 to 60 grains a day without observing any poisoning, the fever usually terminating by lysis on the second or third day of treatment. Barth formulates the following rules:—(1) If the patient is strong, under 40, with no concomitant organic disease, preference must be given to the treatment by baths; (2) under opposite conditions, especially when the heart is feeble, digitalis should be given in doses of 47 to 84 grains of the powdered leaves a day, exhibiting it every two hours infused in water, with the addition of rum and syrup of orange peel. Slight vomiting and vertigo are not contra-indications, but the treatment must be continued till the pulse becomes abnormally slow or irregular. He doubts whether the enormous doses given by Petrescu are free from risk, and whether the artificial lowering of temperature by them is of real value; 45 grains a day of the powdered leaves should be the maximum dose. —*British Medical Journal,* Nov. 7, 1896.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P. Ed., Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

CHRYSAROBIN AND CHRYSOPHANIC ACID.—These are employed somewhat indifferently in the treatment of psoriasis and other affections of the skin, and Walter G. Smith has done good service by his careful inquiry into their constitution, and their mode of action. Crude chrysarobin is the metamorphosed heart-wood of the Andria Araroba, a leguminous tree growing in Brazil. It contains about 70 per cent. of pure chrysarobin, a brownish-yellow powder. There is in it a parent substance called chrysophan, which readily passes, by oxidation, into chrysophanic acid. Thus commercial chrysarobin consists chiefly of chrysophan, with more or less of chrysophanic acid according to the age and condition of the crude chrysarobin. The theory of the mode of therapeutic operation of chrysarobin is, that its irritant and curative action depends upon its reducing or de-oxidising power. The view that it acts as a parasiticide by interfering with the due oxygen supply to the tissues or the fungus respectively, does not seem to be a fully adequate one. Are chrysarobin and chrysophanic acid sufficiently different in action to call for insertion of both in the Pharmacopœia? Smith applied a little of the acid in powder to his forearm, covering it with plaster; two days later no signs of irritation had manifested themselves, merely a few trifling red spots. A similar experiment with chrysarobin produced a circumscribed dusky-red patch, corresponding exactly to the area of application, and slightly tender. He next tested both on psoriasis. A suitable case having been selected, the *right* half of the body and the *right* limbs were treated with an ointment of chrysophanic acid, 20 grains to 1 oz., the *left* half with chrysarobin ointment of the same strength. By the ninth day the scaly patches had nearly disappeared from the left side, leaving white marks. The hair follicles were stained almost black. On the right side the patches showed little or no change, and the mouths of the hair follicles were not specially stained. After a few days, chrysarobin ointment was substituted for the chrysophanic on the right side, and within two days the scaly spots had nearly vanished, their site being marked by white areas on a dark background. Exactly the same results followed similar trials undertaken by Dr Beatty. He therefore concludes that chrysophanic acid is not an efficient substitute for chrysarobin in the treatment of psoriasis.—*British Journal of Dermatology*, July 1896.

INFANTILE SCORBUTUS.—This subject has been attracting much attention of late, and a paper by M'Clanahan, of Omaha, is of interest. The paramount question during the first year of life is proper care and nutrition. Malnutrition may come about in two ways—by lack of some element or elements of food, or by improper digestion or imperfect assimilation of ingested food. Cheadle gave scurvy in childhood its true place. The disease is never seen in the infant nursed at its mother's breast, and probably never in one fed on fresh cow's milk. Of the cases reported by American writers there are a few in which the infant had received a small amount of breast milk, but usually it had been weaned, and the diet in most instances was some patent food or condensed milk. Many authors speak of scurvy as a complication of rickets, but the disease may undoubtedly occur independently. Both are diseases of nutrition; both have for their cause improper food, and they are often associated, but each has its distinct clinical course. An infant reared on food lacking in fat and proteids will likely develop rickets; if it lack freshness as well, scurvy may manifest itself. Almost all cases occur between six and eighteen months, just when infants are kept on an exclusive diet. Deprivation of fresh air, sunshine, and wholesome environment is not essential, since many cases are reported from the homes of the wealthy, where every comfort has been provided except proper food. Among the symptoms especially peculiar to scurvy are "pain on handling and excessive tenderness, especially on moving the limbs," and swelling of a fusiform shape of one or both thighs. Purpura is noted in a number of cases; hæmorrhages into the subcutaneous tissues, frequently about the eyes, or from the bowels, rarely hæmaturia. When teeth are present the gums are swollen and purple; they may ulcerate and bleed freely, so that the breath is fœtid. Before the eruption of the teeth the swelling of the gums is slight, and there may be ecchymotic patches in the mouth. There is absorption of the subcutaneous fat, with failure of strength, anæmia, and fretfulness. The treatment consists in the administration of fresh, unboiled cow's milk, to which cream, sugar of milk, lime water or barley water may be added as required. With this the expressed juice of raw meat may be associated, and the juice of a large orange daily. A case is cited in which the child nursed for a month by its mother was fed on sterilised milk for five months, when diarrhœa appeared, then on an exclusive diet of a dry patent food for two and a half months, when well-marked scurvy developed. A month of proper food almost entirely restored health and strength.—*New York Medical Record*, October 3, 1896.

PERISCOPE OF OBSTETRICS AND GYNÆCOLOGY.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E.

An Epidemic of Mastitis.—Dr H. W. Freund reports six cases of mastitis in one ward of the Strasburg Maternity, and these all happened within seventeen days. In the pus from the second case there were found the staphylococcus pyogenes albus and the micrococcus tetragenus. This patient infected the third, fifth, and sixth cases, and as there was no direct contact, the infection must have been carried in the air. These women all infected their infants secondarily with aphthous stomatitis. The buccal secretion showed, along with leptothrix and streptococci, the staphylococcus pyogenes albus. A mouse inoculated therewith died in two days, and in its organs the staphylococcus was found. In the fourth case, a phthisical i.-para, the author regarded the mastitis as probably tubercular in nature, although no tubercle bacilli were found in the pus. In all the cases an abscess formed, and was treated surgically with success.—*Centralblatt für Gynäkologie*, No. 41, 1896.

Contracted Pelvis in Germany and elsewhere.—In a discussion at the International Gynecological Congress in Geneva, Dr Döhrn said that there was no great difference in the frequency of narrow pelves in the various parts of Germany. It was present in from 12 to 18 per cent. of the cases. The most common form of contracted pelvis was the rachitic. The degree of narrowing was moderate in the majority of the cases, both in the rachitic and in the non-rachitic. The generally and equally contracted pelvis was rarer than the flat pelvis. The osteomalacic pelvis was very uncommon. Dr Lusk, speaking of America, said that pelvic contraction was very rare in native-born Americans; the most usual types were the simple flat pelvis, the generally contracted pelvis, and contraction from kyphosis and scoliosis. Rachitic pelves were almost unknown, and osteomalacic never were met with. As regards Florence, Pestalozza gave the proportion of contracted pelves as 18 per cent. Out of a total of 770 contracted pelves, there were 106 flat rachitic, 41 generally contracted rachitic, 192 generally but irregularly contracted rachitic, 145 simple flat, 236 generally contracted, and 50 pelves contracted from kyphosis, kypho-scoliosis, bilateral dislocation of hip joint, or paralysis and atrophy. There was no case of osteomalacia among these Florentine cases. Pawlik reported 41 cases of osteomalacia in Prague out of a total of over 29,000 women, or ·14 per cent.—*Centralblatt für Gynäkologie*, No. 43, 1896.

Treatment Supplementary to Curettage in Endometritis.—Dr Planellas, of Valencia, is of opinion that the cause of the frequency of incomplete cures in the treatment of endometritis by curettage is the absence of further medication. He would always employ astringents for the catarrhal form, hæmostatics for the hæmorrhagic form, and antiseptics for the infectious varieties. In this way the action of the curette is supplemented, and the risk of a return of the endometritis greatly diminished.—*Annales de Gynécologie et d'Obstétrique*, October 1896.

Urinary Incontinence in commencing cases of Uterine Prolapse.—Dr Boursier emphasizes the frequency of urinary incontinence in the early stages of prolapsus uteri. The incontinence may be true or false, with or without pain, but it is always manifested in the upright posture, is exaggerated by strain or fatigue, and it usually disappears when the woman lies down. It appears to be always due to a urethral lesion, and this being the case, operations for the correction of the urethra are indicated. In a patient with a tear of the cervix and perineum from forceps the urinary symptoms were well marked, and at one sitting Dr Boursier curetted the uterus, amputated the cervix, did a colpo-perineorrhaphy, and performed urethral incision and elevation according to the method of Pousson. The patient was quite cured of both the prolapsus and the urinary incontinence. In another case in which the lesions were similar the urethral operation was omitted, and although the cure of the prolapsus was complete the incontinence of urine remained.—*Annales de Gynécologie et d'Obstétrique*, October 1896.

SHALL HYSTERECTOMY BE PERFORMED IN INFLAMMATORY DISEASES OF THE PELVIC ORGANS?—In answer to this query, Dr L. H. Dunning makes the following statements:—We recognise the utility of hysterectomy in a small percentage of cases of bilateral suppuration of the tubes and ovaries in which the uterus is distinctly septic, and in cases of septic uteri which cannot be cured by other means after bilateral salpingo-oöphorectomy. We oppose hysterectomy, as a rule, in inflammatory diseases of the pelvic tissues upon the following grounds:—(*a*) The uterus is the central organ of the reproductive system, and should not, except for palpable and urgent cause, be extirpated; (*b*) it is only in rare cases that the uterus is so far diseased as to resist the curative effects of appropriate treatment; (*c*) the removal of the uterus profoundly affects the nervous system and emotional nature of young women deprived of this organ. We oppose the removal of the uterus from anatomical reasons, for as a result the vagina is shortened, the anatomical relations of the bladder, sigmoid, and rectum are changed, the elasticity of the pelvic diaphragm is greatly diminished or entirely removed, the elastic tissue being largely replaced by sensitive scar tissue. Further, in married women it often disturbs the sexual relations of husband and wife, and is apt to induce mental depression. Vaginal hysterectomy compels the use of drainage, because of the necrosis of tissue and suppuration induced.—*American Journal of Obstetrics*, October 1896.

ALBUMINURIA IN PREGNANT AND PUERPERAL WOMEN.—Dr Eklund, of Stockholm, discusses this greatly discussed subject afresh. He believes that in handbooks for midwives attention should be called to the necessity of examining the urine of every pregnant woman. In case the urine is found to contain albumin, the midwife should be competent to order hot tub baths, flannel underwear, rest in the recumbent posture, mild diuretics and laxatives, beef-tea with parsley, seltzer water with boiling milk, milk food, boiled fruit, weak coffee, tea, and chocolate, compound liquorice powder, etc. If this hygienic treatment does not within a certain time, say a month, cause the disappearance of the albumin, a physician should be called. A matter of great importance is that the pregnant woman should learn to procure for herself daily evacuation of the bowels, especially toward the end of pregnancy and in beginning labour. For this purpose dietetic means should be employed chiefly, but in case of failure, mild aperients should be used, such as cascara, senna, frangula, compound liquorice powder, and enemata of salt-and-water. Of the very highest importance during pregnancy, and especially during the puerperal state, is the care of the kidneys, the avoidance of all that would tend to increase the functional activity of these organs, the maintenance of equilibrium, and the proper division of labour between the skin, digestive apparatus, and the kidneys. If any organ can bear a greater exercise of function, it is the skin, and next in order of tolerance the intestinal tract; the lungs are far more sensitive, but the kidneys most of all. No puerperal woman should be permitted to leave her bed until her urine is free from albumin, if possible.—*American Journal of Obstetrics*, October 1896.

SURGICAL PERISCOPE.

By Kenneth M. Douglas, M.D., F.R.C.S. Edin.

Five Cases of Rupture of Urethra Treated by External Urethrotomy and Suture.—Cabot of Boston reports these cases, with an immediate good result in all; three were seen some years after, and in two no stricture was found, in the third a narrowing of the canal of a soft and yielding nature. The operation is not difficult, the bleeding from the bulb being a guide to the posterior part of the urethra; interrupted catgut sutures were used, not including mucous membrane; tightening of stitches stopped all bleeding. Cabot's conclusions are:—(1.) In cases of ruptured urethra immediate perineal section with suture of the urethra should be practised. (2.) By this procedure not only do we greatly lessen the danger of urinary infiltration and abscess, but we also, in a large proportion of cases, may hope to prevent the formation of close intractable strictures. (3.) In an early operation the search for the posterior end of the urethra is much easier than it is later. The hæmorrhage from the branches of the artery of the bulb serves as a guide to that end of the canal.—*Boston Medical Journal.*

Relations of Gall-stones to Cancer of Gall-bladder.—Dr Kelynack, from consideration of the records he has had access to and observation of cases, is driven to the following conclusions:—1. Gall-stones are met with in from 6 to 10 per cent. of all cases submitted to a pathological examination. 2. Primary cancer of the gall-bladder occasionally occurs unassociated with gall-stones. 3. In the large majority of cases primary cancer of the gall-bladder is associated with gall-stones. 4. The presence of gall-stones in certain subjects, and doubtless in connexion with other predisposing conditions, favours a cancerous development.—*Practitioner*, April 1896.

Serum Treatment in Urinary Infection.—MM. Albarran and Mosny have been investigating the culture and inoculation of coli bacillus and its toxines, to determine whether immunity can be conferred by inoculation. The importance of the investigation lies in the fact that the surgeon producing wittingly a urethal or vesical trauma in patients whose urine contains this organism, necessarily exposes the patient to the risks of systemic infection; and to be able by previous serum inoculations to induce immunity from the coli bacillus infection would be of incalculable advantage. The results of the work here reported are of an encouraging nature, and the authors believe that by subcutaneous and intra-vesical injection of the serum good results have been and will be obtained. —*Ann. des Mal. Genito-Urin.*, Oct. 1896.

APPENDICITIS.—Two Berlin surgeons have contributed important papers on the subject. E. Sonnenberg (*Berlin. klin. Wochen.*, No. 22, 1896), at the twenty-fifth anniversary of the German Society of Surgery, communicates the results of his work, and divides his cases into seven groups—(1) slight cases, with frequent slight "colic," without severe pain, swelling or fever, associated with trifling changes in the appendix; (2) cases with thickening and twisting of appendix, and slight adhesions, characterised by slight pain and local feeling of resistance between the attacks, and during an attack obvious swelling; (3) a condition similar to the last, but with the presence of fœcal "pellets" in the lumen; (4) "empyema" of the appendix, often following ulceration and cicatrization; the progress of such cases depends upon the character of the pus and its organism; (5) simple appendicitis, with infective complications—(*a*) surrounding exudation, (*b*) lymphangitis of ilio-cæcal vessels, followed by distant infections (pleura, liver, peritoneum), (*c*) gangrene of the appendix with peritonitis; (6) perforative appendicitis with peritonitis (local or general); (7) perforative appendicitis with multiple abscesses, peritonitis, abscess of liver or diaphragm, empyema, etc. Sonnenberg advocates intervention even in slight cases, especially when they run a chronic course; but the treatment should always be removal of the appendix, and not simply incision of the abscess.

J. Rotter (*Central. f. Chirurgie*, Oct. 24, 1896) bases his paper upon 213 cases treated in the wards, medical and surgical, of the St Hedwig Krankenhaus, Berlin, and the inclusion of the "medical" cases imparts a special value and interest to his work. With respect to the mortality of "perityphlitis," of the 213 cases reported 19 ended fatally (= 8·9 per cent.); diffuse peritonitis was present in 21 cases, and of these 14 were fatal, in spite of early operation; of 192 cases of circumscribed peritonitis, 106 (= 82 per cent.) yielded to non-operative treatment; of the remaining 36, 33 underwent operation, with two deaths, three patients dying without operation in the medical wards, so that in this group there were five deaths (= 2·5 per cent.); of these five, one certainly and two probably should by early operation have been prevented, so that in favourable cases the mortality would be 1 per cent. Taking the cases as a whole, the author believes that a mortality of 7 or 8 per cent. must be looked for. The principle followed in treatment was immediate operation in general peritonitis, delay in localized peritonitis. To determine the frequency of recurrence, Rotter considers Sonnenberg's material together with his own, and finds this tendency in 21 to 27 per cent., usually two attacks, rarely three or more; recurrence commonly occurred within the first year; in half of the recurrent cases the appendicitis is non-perforative, and so the disease loses a large element of danger in such cases. Very important are the remarks on the spontaneous cure of perityphlitis; in considering this point only such cases are dealt with as came under treatment in the first six days of the disease, and of these cases there were 110 with 100 (or 90 per cent.) "spontaneous" cures; if with these are grouped cases with general peritonitis in first six days of disease, one has "spontaneous" cure in 84 per cent. After showing the possibility of pus being spontaneously discharged by the bowel, by rupture of the appendix and external opening, by absorption by the peritoneum (more usual), Rotter gives a clinical picture of the disease; rejecting Sonnenberg's division into simple and perforative forms, he distinguishes his cases as localized or complicated by general peritonitis. His remarks on the temperature are valuable, and in this relation he distinguishes various types of cases:—(1) Cases with early fever (40° C.), defervescence on third or fourth day, and rapid recovery; (2) similar onset, but more prolonged fever, with fall of temperature about fifth day to 39° C.; of 14 such cases, three were operated on for abscess, and all cured; if fever still present on eighth day, such cases should be operated on; (3) temperature after fifth day still over 39° C.—infection virulent—prognosis unfavourable; of 11 such cases two died, two were cured without operation, four were operated on, and three recovered after long illness (perforation into the bowel); these cases demand early operation, on sixth day at latest, earlier if symptoms of peritonitis occur; (4) recurrence of fever after early defervescence; of six such cases four were operated on, one died from peritonitis; they should be operated upon on the first relapse; (5) general peritonitis, with serious infection, low temperature; in these cases the state of the pulse gives indications as to the severity of the disease; operation is absolutely indicated. Rotter would only operate on his cases when symptoms arise indicating danger to life or complications—the operation is not always easy, and many cases recover without operation. In recurrent cases removal of the appendix should be carried out only after three attacks, or when after any attack there persisted tenderness of the appendix. General peritonitis may often be avoided in appendicitis by prolonged rest in bed, and by avoidance of purgatives. Gangrene of the appendix was met with five times—it indicates a severe infection; adhesion to the small bowel was twice seen, to the back of the colon once, to the rectum twice, to the sacrum once; thrice the appendix was found in right femoral herniæ, twice in inguinal herniæ. Twice intestinal obstruction existed, from formation of a kink in the small bowel; both patients recovered.

Part Fifth.

MEDICAL NEWS.

Royal College of Physicians, Edinburgh.—The following gentlemen, having passed the requisite Examination, were admitted Fellows of the College:—George Elder, M.D., 7 Leopold Place; Harry Rainy, M.B., 25 George Square; John Macmillan, M.B., 27 Warrender Park Road.

Royal College of Physicians and Surgeons, Edinburgh, and Faculty of Physicians and Surgeons, Glasgow:—The Quarterly Examinations for the Triple Qualification in Edinburgh took place in October, with the following results:—

First Examination (*Four years' Course*).—Of 10 Candidates entered, the following 6 passed—Henry Vaughan Mayne, Cork; William Ritchie, Perth; Robert John Morgan, Co. Antrim; William Dunseith Dickson, Cookstown; Daniel Patrick O'Sullivan, Cork; and Edgar Hepworth Alton, Plymouth.

First Examination (*Five years' Course*).—Of 36 Candidates entered, the following 15 passed the Examination—Fanny Wood, Kerry; James Edward Ratcliffe, Accrington; Prudence Elizabeth Gaffikin, Belfast; Andrew Graham, Peebles; Marcus Henry Lynch, Galway; John Noonan Meade, Co. Cork; George Robertson, Dunfermline; William Donovan, Co. Cork; Harry Edmund Colquhoun Keith Murray, Nova Scotia; Frederick William Kerr Tough, Aberdeen; Elgar Emrys Evans, Bengal; David Patrick Johnstone, Dunmanway; William Charles Massy Burnside, Belfast; John Thomas Moore, Dublin; and George Kee, Greenock. Four Candidates passed in one or two divisions.

Second Examination (*Four years' Course*).—Of 49 Candidates, the following 21 passed the Examination—Louise Blanche Smith, Calcutta; Samuel John Brookfield Fox, Sheffield; Philip Heywood Hadfield, Birkenhead; Nicholas Cullinan, Cork; William Edwin Heal, Halifax; William Berkeley Kenneth Richards, Buckingham; Pieter Hermanus du Plessis, South Africa; Edmund Balmer Anderton, Lancashire; James MacRae, Beauly; David Wilson, Co. Antrim; John James Scanlan, Co. Cork; John Sandison Crabbe, Aberdeen; Alexander Elmslie Crabbe, Aberdeen; Rupert Henry Hunter, Repton; Robert Vincent Donnellan, Limerick; Henry Norman Barnett, Co. Down; Alexander Galloway, South Shields; Benjamin Richard Roberts, Athlone; Charles Alexander Mateer, Co. Down; Robert Donald Campbell Rose, Wigtown; and Robert Francis Houston, Belfast. Five Candidates passed in one or two divisions.

Second Examination (*Five years' Course*).—Of 29 Candidates entered, the following 14 passed the Examination—Alexander Mein Hardie, Edinburgh; Michael King, Ireland; Ernest Hill, Cork; Duncan Macpherson Macgregor, Oban; George Deane Bateman, Cork; Ernest Leon Maunsell Hackett, Cork; David Campbell, Argyll; William Denness, Bothwell; John Thomas Moore, Dublin; Paul Johannes van Coller, Cape Colony; Jessie Jane Graham, Dunfermline; Lizzie Beatty, Ballymena; John Buckley, Ashton-under-Lyne; and Emma Bond, Accrington

Third Examination (*Five years' Course*).—Of 10 Candidates entered, the following 5 passed the Examination—Henry Stewart Anderson, Co. Antrim; Ernest Frederick Lionel de Jersey, Hampshire; John Dick, Greenock; Cecil Charles Murison, India; and Rosalie Berthon, London. Three Candidates passed in one or two divisions.

Final Examination.—Of 112 Candidates entered, the following 41 passed the Examination, and were admitted L.R.C.P.E., L.R.C.S.E., and L.F.P. & S.G.—Alfred Newton Davies, Warwickshire; Robert Stenhouse Williams, Liverpool; David Louis Spillane, Listowel; John Hancock Busteed, Madras; Ernest Hosking Birchall, Rainhill; Marshall Hall, Wigan; Ernest Dodds, Sheffield; Charles Wakeham Holmestead, Essex; Janet Gertrude Horwood, Aylesbury; Edmund Frost, Ashton-under-Lyne; John Dunlop, Glasgow; Angus John Grant, Canada; John Roche, Co. Cork; William Hawkins Irwin, Leeds; Emily Frances Chestnut FitzSimon, Tralee; Thomas MacDowell, Co. Down; Alexander Buchanan Hood, Glasgow; Harry Exell, Kent; Michael Higgins, Co. Derry; Charles Herbert Thackrah, Halifax; Alexander Glencorse Hays, West Bromwich; James Cathcart Hamilton, Ireland; John Ferguson M'Fadyen, Scotland; Frederick George Henderson, India; William Scot, India; Bertwine Goldsmith Roscoe, Liverpool; Edward Wright, Dublin; Samuel George Arthur Jeffs, Great Grimsby; John James Williamson Campbell, Surrey; Frederick Edward Bissell, Birmingham; John Kennedy, Co. Antrim; Walter Latham, Hindley; Sydney Baker Gay, Swindon; John Raynor Hatfield, Dewsbury; Louise Blanche Smith, Calcutta; John Alexander Preston, Ireland; Maniketh Appu Menon, India; Herbert William James Joseph Goodricke Cattell, Mauritius; James Law Brownridge, Paisley; Michael Louis Neylon, Australia; and Ernest Blair, South Shields. In addition to the above, 11 Candidates passed in Medicine, 5 in Surgery, 14 in Midwifery, and 11 in Medical Jurisprudence.

Presentation to Dr Boyd, Slamannan.—The annual business meeting and dinner of the Midland and Scottish Western Medical Society was held recently in St Enoch Station Hotel, Glasgow, and both were well attended by members, some of whom had come from a considerable distance. The dinner was an enjoyable one, and was rendered interesting, in the first place, because it marked the semi-jubilee of the Society, and also because advantage was taken of the meeting to present Dr Boyd of Slamannan with a complimentary illuminated address, signed by the President and other office-bearers of the Society. Dr Boyd was its first President twenty-five years ago, and it was very largely through his influence that the Association was formed. The President of the year, in making the presentation, referred to Dr Boyd's long association with the Society, and expressed the feelings of the members that Dr Boyd might long be spared to enjoy the ease which his prolonged labours had so well earned for him.

SEA-SICKNESS: ITS CAUSE AND RELIEF.

By James L. Minor, M.D., Memphis, Tenn.

In the *Memphis Journal of the Medical Sciences* for October 1889 I advanced the theory of the aural origin of sea-sickness, basing my conclusions upon The Freedom of Deaf-mutes from Sea-sickness, and its Bearing upon the Theory of Sea-sickness and its Treatment, which was the title of my article. In a trip across the Atlantic I had observed the entire absence of all symptoms of sea-sickness in a party of five deaf-mutes. Indeed, their freedom from any annoyance of the kind, and the excellent appetites they enjoyed and gratified, while others around them were suffering from sea-sickness, excited general comment. Inquiry elicited the fact that deaf-mutes so rarely suffered from sea-sickness as to be, as a class, practically free from the disorder under all circumstances. Through the courtesy of Mr Hasentab, of the Illinois Institute for the Deaf, at Jacksonville, Illinois, who was one of the party, it was learned that out of a party of twenty-two deaf-mutes who crossed the Atlantic two months previously, not one suffered in the slightest degree from any form of sea-sickness, and yet a number of other passengers succumbed to it. Later, this party crossed that most trying of all bodies of water, the English Channel, and the same immunity was observed, though the passage was a rough one, and almost every other passenger on board became sea-sick. He also told me that he once made the trip from San Francisco to Portland by sea, with about thirty other deaf-mutes, that only one of these suffered from sea-sickness, and he had some disease of the ears which often caused dizziness and nausea at other times.

When it is remembered that only about 3 per cent. of persons crossing the ocean are entirely free from sea-sickness, it becomes evident that there must be some special cause for this freedom from it in deaf-mutes; and as the condition of the ears constitutes the only difference between the deaf-mute and the ordinary individual, it is naturally sought here.

It may be well to recall the fact that both physiological experiment and pathological observation point to that part of the inner ear known as the semicircular canals as exercising a controlling influence over the maintenance of the erect posture and the sense of equilibrium—functions frequently disturbed on shipboard.

It is generally conceded that sea-sickness is produced by the frequent and rapidly changing motions of the ship—conditions which it is the function of the semicircular canals to recognise and influence. Symptoms very similar to those of sea-sickness can be produced by turning around rapidly and frequently, or by swinging, and the cause is probably the same in each instance. And in diseased conditions of certain parts of the inner ear—the semicircular canals, in Ménière's disease—the symptoms are somewhat like those of sea-sickness.

Certainly if the foregoing deductions make probable the theory that the semicircular canals are sometimes concerned in the production of sea-sickness, then reasoning by induction establishes it beyond a doubt.

Deaf-mutes do not become sea-sick, nor do they suffer inconvenience—dizziness or nausea—when turned rapidly around, or when swinging. Moreover, it is a well-known fact that only in the irritative form of disease of the semicircular canals do dizziness, etc., appear, and that destructive disease of these parts does not produce either dizziness or nausea. Moos reports a case in which, after the falling out of a necrosed semicircular canal, deafness appeared, and with it permanent cessation of severe dizziness. And I have observed the same thing in one of my patients.

In deaf-mutes there is absolute deafness, or very great reduction in hearing, dependent upon destruction or serious impairment of function of the peripheral distribution or sound-perceptive elements of the auditory nerve, in which process the semicircular canals are included.

These facts must force one to the conclusion that the reason why deaf-mutes do not suffer from sea-sickness is owing to the fact that their semicircular canals are destroyed or their sensibility impaired; and it is equally rational to suppose that others who suffer from sea-sickness do so because they have semicircular canals which are irritated by the frequent and varied motions of the ship.

Now, if by the use of any agent the semicircular canals can be anæsthetized, the value of these conclusions would be settled at once. I suggested the use of oleate of cocaine, putting a few drops in the ear every day or two, or oftener if necessary. Living in an interior town, however, I had no opportunity of trying the drug in genuine cases of sea-sickness, and have had to limit myself to the induced and certainly allied affections—the dizziness and nausea produced by rapidly turning around. The results obtained have surpassed my expectations, and certainly suggest that the local use of cocaine in the ears may prove a most valuable remedy against that *bête noire* of ocean travel, sea-sickness.

I experimented with twenty-four healthy-eared individuals, and found that forty revolutions to the minute constituted rapid turning; that three or four such revolutions were sufficient to cause dizziness and often a sense of nausea; that three drops of an 8 per cent. solution of cocaine oleate, dropped into each ear, diminished the susceptibility to dizziness, etc., to such an extent that more than double the number of revolutions could be made before any inconvenience was felt; that when, from continued turning, the dizziness, etc., came on after the use of the cocaine, it was less pronounced and more transient than without it.

The effects of the cocaine begin to manifest themselves in from twenty minutes to half an hour, and last from four to six hours.

I should say, then, that sea-sickness was a manifestation of irritation of the semicircular canals caused by the frequent and varied movements of the ship; that any drug which will lessen the irritability of the semicircular canals was a rational remedy for sea-sickness, and that a solution of cocaine dropped into the ears was such a remedy.—*New York Medical Journal.*

ALCOHOLISM THROUGH BREAST.—At the Society of Surgery in Paris, M. Vallin spoke on the accidents to which infants are exposed when nursed by women who partake too freely of stimulants. At Paris, in a certain number of well-to-do families, a bottle of good wine was allowed generally each day to the nurse, and, in many cases, strong beer was given *ad libitum.* It was not to be wondered at that, under such circumstances, a small quantity of alcohol passed into the milk and produced in the infant nervous attacks, convulsions, etc., which were frequently attributed to other causes.

TO HIS DELINQUENT PATIENT.

If I should die to-night—
And you should come to my cold corpse and say,
Weeping and heartsick, o'er my lifeless clay;
If I should die to-night—
And you should come in deepest grief and woe,
And say, "Here's that $10 that I owe,"
I might arise in my great white cravat
And say, "What's that?"

If I should die to-night—
And you should come beside my corpse to kneel,
Clasping my bier to show the grief you feel;
I say, if I should die to-night—
And you should come to me, and there and then
Just even *hint* 'bout paying me that ten,
I might arise a while—but I'd drop dead again.

—*Gross Medical College Bulletin.*

Cocaine applied to the mucous membrane of the nostrils is a specific for nausea, according to C. W. Ingram, M.D., who applies a 2 per cent. solution of the drug deeply to the mucous membrane, covering the upper third of the septum of the nose, the superior turbinated and the upper third of the middle turbinated, and the upper part of the nasal cavities. It is a method well worth trying.—*American Medico-Surgical Bulletin*, August 1896.

An exceedingly interesting article on the aboriginal doctors of Australia appears in the *American Medico-Surgical Bulletin* for August. It is written by S. Cassidy, M.D.; and, after describing the initiation ceremonies of the doctor, who, by the way, must always have seen the devil before he can be eligible for the high office of defender of the soul and body, gives a good account of the procedure they adopt, and ends by saying that one must come to the conclusion that "the Australian black fellow has been well looked after by his black physician, and they are worthy of a place among the pain-killers and healers of the world." He shows that the black, if sick and placed under the care of a European doctor, is doomed, whether it is dread, or superstition, or the drugs of our materia medica that hurry him to eternity.

According to Morrison the United States spends an annual sum of 59 million dollars on judiciary police, prisons, and reformatories, and that crime is on the increase out of proportion to the increase of population. The ratio of prisoners to the population was 1 to 3442 in 1850, and 1 to 757 in 1890. 52·6 per cent. of the inmates of the New York State Reformatory come from homes that are positively bad, while 7·6 per cent. come from homes which are positively good.

In the *Australian Medical Gazette* for June, July, and August 1896, S. T. Knaggs, M.D., has a series of articles on "An Enquiry into the Psychological Aspects of the Spiritualism of the Present Day." He holds that the observers in their published and sworn records of what they allege they have seen—"(1.) Are not fraudulent, but are victims of self-deception. (2.) This view would explain various discrepancies in the reports made by observers holding different views. (3.) No mental incapacity is exhibited in forming erroneous views from false data; an error of judgment is only involved."

Dr E. F. Ross publishes Notes on a Case of Prolonged Pregnancy—311 days—in the *Australian Medical Gazette* for July 1896.

Surgeon Lieut.-Col. Edward Lawrie writes to the *Indian Medical Record* (August 18, 1896)—"The malarial parasite is really dead. It can never be revived. I have had slides sent out by Dr Thin, and I find we are examining the identical bodies they get in the blood in malaria in Italy, and there is not a shadow of a doubt that they are altered degenerate blood cells, the effect and *not* the cause of the fever. We now know the value of the 'Laveran body' clinically, and it is this: its presence in the blood, however ill the patient may feel, indicates a mild form of that malarial poisoning, curable with a minimum dose of quinine. The spleen is disordered, but not permanently altered in structure. In more severe cases the spleen is profoundly affected, and there are no 'Laveran bodies' in the blood. This form is curable, but only with maximum and long-continued doses of quinine. In the third form the spleen is hopelessly altered in structure, and indurated. The anæmia is practically 'pernicious,' and there are, of course, no 'Laveran bodies' in the blood,—the spleen being far too disorganised to yield even them, and quinine does little or no good. In these cases the spleen must be removed."

IN the May number of the *Académie de Medecine* the following remarkable case is reported:—A young man was operated upon for what was supposed to be a large abdominal tumour. It proved, however, to be a dermoid cyst, containing a female fœtus as large as is usual at five months. The ovum in the cyst had probably lain latent until puberty, or some traumatism had started it to grow. The young man did not long survive the operation, and died in ignorance of the existence of a little sister in his supposed tumour. See also *Journal de Médecine de Paris* for May 31st.

ASSISTANT-SURGEON MONTGOMERY has, according to the *Pioneer*, been reduced 40 steps for refusing to paint words on a board. It certainly seems strange that such duties should be laid upon military assistant-surgeons in India. No wonder men are chary of entering the Army Medical Department.

DR A. PUNUSAWNY PILLAY recommends garlic as a specific for dysentery. It is prepared as follows:—A dessert-spoonful of peeled garlic should be boiled in a wineglassful of cow's milk and made into a jelly, which should be sweetened with a little sugar, and administered to adult patients every two hours (a teaspoonful to children) till a cure is effected. In chronic cases a teaspoonful of finely-powdered cinnamon bark, together with half a teaspoonful of cloves and a quarter-teaspoonful of powdered nutmeg, should be added to the jelly, and taken three times a day.—*Indian Medical Record*, September 1896.

DR V. S. BALASUNDRA MUDALIAR writes to the *Indian Medical Record* (August 1896) stating that jugglers and snake charmers are in the habit of eating snakes in order to enable them to become proof against snake venom. He mentions the fact that in a duel between the cobra and mongoose the latter, though it received bites from the former, tears the snake into pieces, and gets off itself without any poisonous effects. He believes that these facts go to confirm the opinion now current in the profession that the antidote to snake venom is in the blood of the reptiles themselves.

He adds that snuff or tobacco-juice squirted into a snake's mouth renders it innocuous.

GRAM powder is recommended in acute dysentery, in a dose of 10 to 80 grains, by Dr A. M. Rito Lall Mondal.

CREOSOTE inunction in fever is strongly recommended by Brigade-Surgeon Lieutenant-Colonel James Smith. He says it is quite as efficacious as the aniline group, without lowering the heart's action.

WE cull the following from the *Indian Medical Record*, as it will show how the modern nurse is advancing:—"The following is a printed schedule of terms and conditions which a European nurse had done up in the form of a regular agreement, and which she causes her patients to sign before she begins work:—Mrs ——, diplomaed midwife and sick-nurse, takes up cases under the following conditions:—Her daily charges are Rs. 5 for ordinary, and Rs. 10 for infectious cases. Her employer must provide her with lodging, food, and washing. Her travelling expenses must be paid in advance at the time of engagement. She charges for beer in town Rs. 15 per month, and in the mofussil Rs. 20. Her engagement commences on her departure from home, and terminates on her return, both days inclusive. In a case of a prolonged engagement she must be paid at the end of each month. She claims eight consecutive hours of rest out of every twenty-four. In all cases where she does the confinement, in the absence of a medical man (even though he be engaged), an additional fee of Rs. 50 will be charged. If retained for a confinement case she must be paid at the full rate of Rs. 5 per day from the date of her engagement, even if she be kept waiting beyond that date. If, owing to unforeseen circumstances, her services are eventually not required, the full fee of Rs. 5 per day will be charged for the full term of the engagement. In infectious cases, where her clothing and things have to be destroyed, her employer must reimburse her for such clothing and things destroyed. In all cases where she is engaged for confinement, should necessity occur for medical aid, she still retains her right of claiming Rs. 50. In cases of confinement ladies must provide themselves with materanis and ayahs. In a sick-room no interference will be brooked by officious friends or relatives, except that all orders given by the doctor shall be strictly carried out. In washing and laying out any deceased patient her charges are Rs. 16.

"I have read the above, and agree to engage Mrs —— under the terms above mentioned from to .
—Signature."

THERE is a short but interesting paper on "The Sensibility of Females," by Professor S. Otto Lenghi, in the *Centralblatt für Nervenheilkunde und Psychiatrie*, April 1896, showing that women feel pain far less than men.

Loss of Memory following a jar. The following brief account of temporary loss of memory may be of interest:—A man, aged about 40, had had a trap accident four years ago. At 9.30 on July 14 he was visited by a one-eyed man on some important business, and in the afternoon, about 3, he went a drive. A trap, coming in the opposite direction, ran into his trap, and threw him with some force against the coachman, who was driving. About ten minutes afterwards he felt sick and giddy, got out of the trap, and walked home. He suffered slight headache, but next morning was apparently quite well. At 10 o'clock the one-eyed man came to see him again, when it turned out that the gentleman had absolutely forgotten the visit of the previous day. As far as can be ascertained, about six hours had been obliterated from his mind.

In the *Indian Medical Gazette* for June 1896, Surgeon-Captain Hare gives the best account of the technique of Haffkine's anti-cholera innoculations. The whole procedure is exceedingly well summarised in seventy-two aphorisms.

The value of cocainisation of the nasal and mucous membrane before and during surgical anæsthesia originally put forward by Rosenberg has been confirmed by Gerster, Mayer, and Theobald in a series of 100 cases. The procedure is as follows:—The nose is freed from mucus, and 2 centigrams of a 10 per cent. solution of cocaine are sprayed into each nostril. Two minutes later a second application of 1 centigram is made to each nostril, and anæsthesia is begun. The application is renewed every half hour during the continuance of the administration of the anæsthetic, and before removing the patient a final spray is administered. The advantages of the method are, less feeling of suffocation, owing to absence of odour of the anæsthetic, a very short or often absent stage of excitement; vomiting is very rare, and subsequent nausea invariably absent.

PUBLICATIONS RECEIVED.

L. Ch. Boisliniere, A.M., M.D., LL.D.—Obstetric Accidents, Emergencies, and Operations. H. Kimpton, London, 1896.

Bulletin of the Harvard Medical Alumni Association, No. 9. Report of Sixth Annual Meeting, June 23, 1896. Boston, 1896.

Dr A. Eugen Fick.—Diseases of the Eye and Ophthalmoscopy. Authorized Translation by Albert B. Hale, A.B., M.D. Henry Kimpton, London, 1896.

Irving S. Haynes, Ph.B., M.D.—A Manual of Anatomy. H. Kimpton, London, 1896.

Prof. Edward Jackson, A.M., M.D.—Skiascopy, and its practical Application to the Study of Refraction. Second Edition. The Edwards & Docker Co., Philadelphia, 1896.

Prof. Felix Lejars.—Œuvres de Léon le Fort. Vol. III.: Chirurgie. Felix Alcan, Paris, 1897.

Charles E. Simon, M.D.,—A Manual of Clinical Diagnosis. Henry Kimpton, London, 1896.

Prof. Werner Spalteholz.—Handatlas der Anatomie des Menschen. Band II., Ab. 1. H. Hirzel, Leipzig, 1896.

Transactions of the British Balneological and Climatological Society for year 1895-6. John Bale & Sons, London.

Transactions of the Obstetrical Society of London for year 1896. Part 3, June and July.

Transactions of the West London Medico-Chirurgical Society, Vol. VII. John Bale & Sons, London, 1896.

PERIODICALS RECEIVED.

Albany Medical Annals,—Sept., Oct.
American Gynæcological and Obstetrical Journal,—Sept., Oct.
American Journal of Obstetrics,—Oct.
American Journal of the Medical Sciences, —Oct., Nov.
American Medico-Surgical Bulletin,—Sept. 19-Nov. 7.
American Practitioner and News,—Sept. 5-Oct. 17.
Annales de Dermatologie, etc.,—Aug.-Oct.
Annales des Maladies des Organes Génito-urinaires,—Oct.
Annales des Maladies de l'Oreille, etc.,—Oct., Nov.
Annales de la Policlinique de Bordeaux,—Sept.
Annales et Bulletin de la Société de Médecine d'Anvers,—Sept.
Annali di Ostetricia e Ginecologia,—Sept.
Archives Générales de Médecine,—Oct., Nov.
Archives of Pediatrics,—Oct., Nov.
Australasian Medical Gazette,—Aug., Sept.
Berliner Klin. Wochenschrift,—Sept. 28-Nov. 16.
Birmingham Medical Review,—Oct.
Births, Deaths, and Marriages, Monthly Returns of,—Sept., Oct.
Do., Quarterly Returns of,—Sept.
Do., Weekly Returns of,—Sept. 19-Nov. 14.
Blätter für Klinische Hydrotherapie,—Sept.-Oct.
Boletin da Sociedade de Medicina e Cirurgia de Sao Paulo,—July.
Boston Medical and Surgical Journal,—Sept. 10-Nov. 5.
Bristol Medico-Chirurgical Journal,—Sept.
British Journal of Dermatology,—Oct., Nov.
British Medical Journal,—Sept. 26-Nov. 14.
Brooklyn Medical Journal,—Oct., Nov.
Bulletin of the Johns Hopkins Hospital,—Sept., Oct.
Centralblatt für Bacteriologie und Parasitenkunde,—Band xx., Nos. 10-19.
Centralblatt für Chirurgie,—Sept. 26-Nov. 14.
Centralblatt für Gynäkologie,—Sept. 26-Nov. 14.
Centralblatt für Innere Medicin,—Sept. 26-Nov. 14.
Centralblatt fur die medicinischen Wissenschaften,—Oct. 17.
Centralblatt für Nervenheilkunde und Psychiatrie,—Oct.
Charlotte Medical Journal,—Sept., Oct.
Chemist and Druggist,—Oct. 3-Nov. 21.
Dominion Medical Monthly and Ontario Medical Journal,—Sept., Nov.
Dublin Journal of Medical Science,—Oct., Nov.
Gaceta Médica de Costa Rica,—Sept., Oct.
Gazette Médicale de Paris,—Sept. 26-Nov. 14.
Gazzetta Medica di Torino,—Oct. 22-Nov. 5.
Glasgow Medical Journal,—Oct., Nov.
Il Policlinico.—Sept. 15-Nov 1.
Indian Medical Gazette,—Sept., Oct.
Indian Medical Record,—Sept.-Oct. 16.
Intercolonial Medical Journal of Australasia —Aug., Sept.
International Medical Magazine,—Sept., Oct.
Journal de Médecine de Paris,—Sept. 27-Nov. 15.
Journal of Anatomy and Physiology,—Oct.
Journal of Cutaneous and Genito-Urinary Diseases,—Oct.
Journal of Eye, Ear, and Throat Diseases,—Oct.
Journal of Mental Science,—Oct.
Journal of Nervous and Mental Disease,—Sept., Oct.
Journal of the American Medical Association,—Sept. 12-Nov. 7.
Journal of the British Dental Association,—Oct. 15, Nov. 16.
Klinische Monatsblätter für Augenheilkunde,—Oct., Nov.
Lancet.—Oct. 17-Nov. 21.
Mathews' Medical Quarterly,—Oct.
Medical Chronicle,—Oct.
Medical Pioneer,—Oct., Nov.
Medical Press and Circular,—Sept. 30-Nov. 18.
Medical Reformer,—Nov. 16.
Medicine,—Oct., Nov.
Merck's Market Report,—Sept. 15-Nov. 1.
Montreal Medical Journal,—Sept.
Morningside Mirror,—July-Oct.
New York Medical Journal,—Sept. 19-Nov. 7.
New York Medical News.—Sept. 12-Nov. 7.
New York Medical Record,—Sept. 19-Nov. 7.
New York Post-Graduate,—Oct.
Nordiskt Medicinskt Arkiv,—Band vi., Häft 3, 4.
Occidental Medical Times,—Sept., Oct.
Pacific Medical Journal,—Oct.
Pediatrics,—Oct. 1-Nov. 16.
Philadelphia Medical and Surgical Reporter, Sept. 5-Oct. 31.
Philadelphia Polyclinic,—Sept. 12-Nov. 7.
Philadelphia Universal Medical Journal,—Sept.
Practitioner,—Oct., Nov.
Proceedings of the Society for the Study of Inebriety,—Nov.
Quarterly Medical Journal for Yorkshire and adjoining Counties.—Oct.
Revue de Chirurgie,—Oct.
Revue de Thérapeutique Médico-Chirurgicale,—Oct. 1-Nov. 15.
Sei-i-Kwai Medical Journal,—Aug. 28.
The Hospital,—Sept. 26-Nov. 21.
The Medical Age,—Sept. 10-Oct. 26.
Therapeutic Gazette,—Sept. 15-Oct. 15.
Tri-State Medical Journal,—Sept., Oct.
Upsala Läkareförenings Förhandlingar, Bd. i., Häft 8.
Virchow's Archiv,—Band 145, Heft 3.
West London Medical Journal,—Oct.

INDEX.

A

Abbott, A. C., M.D., the principles of bacteriology, third edition, *rev.*, 55.

Abortion, criminal, in the Punjab, by Surg.-Capt. Charles H. Bedford, M.D., 422.

Absorption of fluid from the rectum, 468.

Acromion process, separate, simulating fracture, by John Struthers, M.D., 97.

Acute pemphigus, 471.

Age and volupty in women, 484.

Albuminuria in pregnant and puerperal women, 558.

Alkaline waters, the effect of, 553.

Allbutt, Thomas Clifford, M.D., a system of medicine. by many writers, vol. i., edited by, *rev.*, 255.

Allen, Charles Warrenne, M.D., transactions of the American Dermatological Association at its nineteenth annual meeting, held at the Windsor Hotel, Montreal, official report by, *rev.*, 460.

Anæmia, hypodermic injections of Fowler's solution in, 279.

Angina pectoris, nitro-glycerine in, 552.

Anterior poliomyelitis, clinical lecture on, and alcoholic neuritis, by Alexander James, M.D., 315.

Anthrax antitoxin, 77.

Anti-diphtheria serum, the efficacy of, given by the mouth, 466.

Antiseptic bandages, 86.

Antitoxin in angina, Behring's, 78.

Antituberculous serum and antitoxin, the preparation of, 176.

Apocynum cannabium, 178.

Appendicitis, 560.

Appendicitis, atypical cases of, with a discussion of symptomatic parotiditis, by W. Ramsay Smith, M.B., 114.

Appendix vermiformis, surgical treatment of diseases of the, by J. A. Macdougall, M.D., 489.

Army Medical Department examinations, information regarding the, 377.

Artificial serum in acute pneumonia, endovenous injections of, 277.

B

Bactericidal action of the X rays, 553.

Ball, James B., M.D., a handbook of diseases of the nose and pharynx, *rev.*, 260.

Ballantyne, J. W., M.D., teratogenesis: an inquiry into the causes of monstrosities, 1, 240, 307; periscope of obstetrics and gynæcology, 83, 183, 475, 556.

Balsam of Peru in itch, 178.

Bandages, antiseptic, 86.

Barbour, A. H. Freeland, M.D., Braune's os internum and the retraction ring, 393; supplement to the atlas of the anatomy of labour, *rev.*, 456.

Barclay, John, B.Sc., Southall's organic materia medica, *rev.*, 267.

Bedford, Surg.-Capt. Charles H., M.D., criminal abortion in the Punjab, 422.

Behring's antitoxin in angina, 78.

Bell, Robert. M.D., sterility, *rev.*, 154.

Belostoma, or electric light bug, poisonous sting of the, 180.

Bernard, H. and M., the structure of man: an index to his past history, by Professor R. Widersheim, translated by, the translation edited and annotated, and a preface written by Professor G. B. Howes, F.L.S., *rev.*, 52.

Berry, G. A., M.B., quarterly periscope of ophthalmology, 480.

Bilateral paralysis of external rectus, 85.

Binz, Dr C., lectures on pharmacology, for practitioners and students, translated from the second German edition, by Arthur C. Latham, M.A., vol. i., *rev.*, 267.

Bocquillon-Limousin, H., formulaire des médicaments nouveaux pour 1896, avec une introduction par Henri Huchard, *rev.*, 267,

Boisliniere, L. Ch., M.D., obstetric accidents, emergencies, and operations, *rev.*, 457.

Braidwood, P. Murray, M.D., the mother's help and guide to the domestic management of her children, second edition, *rev.*, 457.

Braithwaite's retrospect of medicine, vol. cxiii., *rev.*, 544.

Bramwell, Byrom, M.D., and Leith, R. F. C., M.D., enormous primary sarcoma of the liver in which a large blood-cyst, simulating a hepatic abscess, was developed, 331.

Braune's os internum and the retraction ring, by A. H. Freeland Barbour, M.D., 393.

Breast babies, the indigestion of, by James Carmichael, M.D., 123.

Brown, A. S. and G. G., the guide to South Africa, 1896 edition, *rev.*, 550.

Bruce, Surg.-major David, A.M.S., preliminary report on the tsetse fly disease, or nagana, in Zululand, *rev.*, 347.

Burdett's hospitals and charities, 1896, *rev.*, 268.

C

Cadell, Francis, F.R.C.S., periscope of syphilis and genito-urinary diseases, 389, 484.

Calcium chloride in the treatment of urticaria, 470.

Calcium chloride, the pathology of itching and its treatment by large doses of, 471.

Cancer of gall-bladder, relations of gall-stones to, 559.

Cancer of the stomach treated by the Röntgen rays, 466.

Cancer, serum treatment of, 186.

Cape of Good Hope Leprosy Commission 1895, final report of commissioners, with minutes of proceedings and appendix, vol. iv., *rev.*, 263.

Carbolic acid, value of, in some catarrhal diseases of children, 478.

Carcinoma of the stomach: operative treatment, 386.

Carmichael, James, M.D., the indigestion of breast babies, 123.

Castration for enlarged prostate, 387, 390.

Catarrhal diseases of children, value of carbolic acid in some, 478.

Cathcart, Charles W., F.R.C.S., classification in pathology, 37, 141.

Cerebral embolism during labour, 477.

Chiais, Dr F., les variations de la mortalité à Paris, leur cause météorologique, *rev.*, 346.

Children, occasional periscope of the diseases of, by John Thomson, M.D., 478.

Chipault, A., chirurgie opératoire du système nerveux, vol. i., chirurgie craniocérébral, *rev.*, 448.

Cholesteatomas originating in the female pelvis, by James Oliver, M.D., 33.

Chrysarobin and chrysophanic acid, 554.

Circumscribed eczematiform eruption, persistent, affecting the nose, of malarial origin, 474.

Clarke, J. J., F.R.C.S., post-mortem examinations in medico-legal and ordinary cases, *rev.*, 545.

Clarkson, Arthur, a text-book of histology, *rev.*, 264.

Colchicum in furunculosis, 280.

Collins, E. J., F.R.C.S., researches into the anatomy and pathology of the eye, *rev.*, 152.

Congenital tumour on the face of a child, case of, by J. Rutherford Morison, F.R.C.S. (with reports by Mr J. H. Targett and Dr J. W. Ballantyne), 130.

Contrexéville, 389.

Corfield, W. H., M.D., disease and defective house sanitation, *rev.*, 545.

Cornea, massage of the, 86.

Coromilas, Dr G., technique of the dilatation of the perineum in labour, 134.

Corrosive sublimate solution, guinea-worm treated by, 279.

Coxa vara, 387.

Craig, Wm., M.D., monthly report of the progress of therapeutics, 77, 175, 277, 466, 552.

Cunningham, Prof. D. J., manual of practical anatomy, vol. i., second edition, *rev.*, 157.

Curettage in endometritis, treatment supplementary to, 557.

Cyst of the urinary bladder, rare variety of, probably arising from urachus, cured by operation, 388.

D

Dalby, Sir William B., F.R.C.S., short contributions on aural surgery, third edition, *rev.*, 451.

Dalton, Norman, M.D., aids to medicine, *rev.*, 257.

Daniell, Alfred, F.R.S., physics for students of medicine, *rev.*, 541.

Dawson, W. R., M.D., the elements of pathological histology, by Professor Anton Weichselbaum, translated by, *rev.*, 55.

Delivery through a central rupture of the perineum, 85.

Dermatology, occasional periscope of, by W. Allan Jamieson, M.D., 81, 178, 279, 470, 554.

Dey, Kanny Lall, F.C.S., the indigenous drugs of India, second edition, *rev.*, 544.

Diabetes, dietetic value of fat in, by James C. Dunlop, M.D., 399.

Diabetes mellitus, the blood in, by Alexander James, M.D., 193.

Diabetes, the use of oxygen in, 553.

Diabetic neuritis, with a description of the post-mortem examination of the nerves and muscles, by Professor Thomas R. Fraser, M.D., and Alex. Bruce, M.D., 300.

Dickinson, W. Howship, M.D., occasional papers on medical subjects, 1855–1896, *rev.*, 256.

Diphtheria? Is membranous croup always due to the microbe of, by Gordon Sharp, M.D., 518.

Diphtheria, short notes on the value of the bacteriological examination in, by F. Reid Mackay, M.D., 527.

Diphtheria treated with antitoxin, notes of seventeen consecutive cases of, by J. G. M'Naughton, M.B., 26.

Dispensaries, hospitals, etc., list of, in connexion with the medical schools of Edinburgh, 375.

Domville, Edward J., L.R.C.P., a manual for hospital nurses and others engaged in attending on the sick, eighth edition, *rev.*, 464.

Donald, Archibald, M.D., three cases of symphysiotomy, with remarks, 513.

Douglas, Kenneth M., M.D., surgical periscope, 385, 559.

Doyne, Robert W., F.R.C.S., notes on the more common diseases of the eye, *rev.*, 343.

Dreyfuss, Dr R., die krankheiten des

gehirns und seiner adnexa im gefolge von naseneiterungen, *rev.*, 342.

Dunlop, James C., M.D., the dietetic value of fat in diabetes, 399.

E

Eccles, W. M'Adam, F.R.C.S., elementary anatomy and surgery for nurses: a series of lectures delivered to the nursing staff of the West London Hospital, *rev.*, 57.

Edinburgh Hospital reports, vol. iv., *rev.*, 461.

"Electric light bug," or belostoma, poisonous sting of the, 180.

Endovenous injections of artificial serum in acute pneumonia, 277.

Erysipelas, ichthyol-traumaticine in the abortive treatment of, 471.

Erythema exudativum multiforme, visceral complications of, 82.

Erythropsia, 87.

Eucaine, 278.

Eucalyptus globulus in strychnine poisoning, 469.

Eucasin, 467.

Europhen, 80.

Examinations and medical education in Edinburgh, information regarding, 363.

Excessive intestinal putrefaction, 483.

External rectus, bilateral paralysis of, 85.

F

Fever of pregnancy, 477.

Finlayson, J., M.D., Galen, *rev.*, 548.

Fœtal peritonitis, 183.

Foods, infants', constitution and use of, by W. G. Aitchison Robertson, M.D., 417.

Football impetigo, 280.

Forceps with adjustable axis-traction; and on forceps for occipito-posterior positions of the vertex, by R. Milne Murray, F.R.C.P., 228.

Forceps, version or high, 475.

Fothergill, W. E., M.B., manual of midwifery for the use of students and practitioners, *rev.*, 455.

Fox, R. Fortescue, M.D., Strathpeffer spa: its waters and climate, third edition, *rev.*, 350.

Fraser, Prof. Thomas R., and Bruce, Alex., M.D., on a case of diabetic neuritis, with a description of the post-mortem examination of the nerves and muscles, 300.

Freyer, P. J., M.D., the modern treatment of stone in the bladder by litholapaxy, second edition, *rev.*, 449.

Furunculosis, colchicum in, 280.

G

Gairdner, Dr J., the sixteenth annual report of the medical officer of health of the burgh of Crieff, *rev.*, 546.

Gall-stones, relations of, to cancer of gall-bladder, 559.

Gant, S. G., M.D., diagnosis and treatment of diseases of the rectum, anus, and contiguous textures, *rev.*, 534.

Gastric disease, papain in, 468.

Gastropaxy, 386.

Gemmell, G. H., F.C.S., chemical notes and equations, inorganic and organic, *rev.*, 543.

Generalized vaccinia, 81.

Giffen, Grace Haxton, L.R.C.S., a morning in a Ludhiana dispensary, Punjab, India, 439.

Gillespie, A. Lockhart, M.D., occasional medical periscope, 88, 185, 482.

Glycerine, induction of labour by the intra-uterine injections of, 83.

Glycosuria produced by phloridzin, action of drugs on the, 175.

Goodall, E. W., M.D., and Washbourn, J. H., M.D., a manual of infectious diseases, *rev.*, 545.

Growth, influence of thyroid products on, 478.

Guaiacol, use of, subcutaneously in the treatment of, 278.

Guinea-worm treated by corrosive sublimate solution, 279.

Günsburg, Dr Mark, two teratological cases, translated, with notes, by Dr J. W. Ballantyne, 137.

Gynæcology and obstetrics, on the use of plaster moulds as a basis for models in, by D. Berry Hart, M.D., 15.

H

Hale, A. B., M.D., diseases of the eye, by E. Fick, translated by, *rev.*, 536.

Halliburton, W. D., M.D., Kirkes' handbook of physiology, fourteenth edition, *rev.*, 540.

Harris, Vincent Dormer, M.D., the treatment of pulmonary consumption, *rev.*, 530.

Hart, D. Berry, M.D., on the use of plaster moulds as a basis for models in gynæcology and obstetrics, 15.

Hedley, W. S., M.D., hydro-electric methods in medicine, second edition, *rev.*, 156.

Henry, T. J., F.R.C.S., Claude Garton, *rev.*, 549.

Hertwig, Prof. Dr Oscar, the biological problem of to-day: preformation or epigenesis? translated by P. Chalmers Mitchell, M.A., *rev.*, 445.

Hessler, Dr Hugo, die otogene pyämic, *rev.*, 453.

Hewer, Mrs Langton, our baby: for mothers and nurses, *rev.*, 268.

Hill, Leonard, M.B., the physiology and pathology of the cerebral circulation, *rev.*, 341.

Hospitals, dispensaries, etc., list of, in connexion with the medical schools of Edinburgh, 375.

Huber, G. Carl, M.D., directions for work in the histological laboratory, University of Michigan, *rev.*, 266.

Human epitrichium: its physiological functions, and its rôle in the causation of skin diseases, 180.

Hydrocele, bilocular intra-pelvic and scrotal, 388.

Hypodermic injections of Fowler's solution in anæmia, 279.

I

Ichthyol in ophthalmic practice, 470.
Ichthyol-traumaticine in the abortive treatment of erysipelas, 471.
Icterus due to lactophenin, 80.
Impetigo, football, 280.
Impey, S. P., M.D., a handbook of leprosy, *rev.*, 51.
Indian Medical Service examinations, regulations for the, 380.
Induction of labour by the intra-uterine injections of glycerine, 83.
Infantile scorbutus, 555.
Inflammatory diseases of the pelvic organs, shall hysterectomy be performed in, 558.
Ingals, E. Fletcher, M.D., diseases of the chest and nasal cavities, third edition, *rev.*, 531.
Insane, thyroid treatment in the, 79.
Interstitial keratitis, 480.
Intestinal putrefaction, excessive, 483.
Intestinal sepsis, 88.
Intra-uterine infection of syphilis, 484.
Intravenous injection of normal saline solution, 177.
Ireland, William W., M.D., observations on mental affections in children and allied neuroses, 196, 326.
Irvine, R. W., M.B., ligature of veins in a case of varicose ulcer, 227.
Itch, balsam of Peru in, 178.
Itching, pathology of, and its treatment by large doses of calcium chloride, 471.

J

Jack, F. B., the art of cooking for invalids in the home and in the hospital, *rev.*, 550.
Jackson, E., M.D., skiascopy, second edition, *rev.*, 538.
James, Alexander, M.D., the blood in diabetes mellitus, 193; clinical lecture on anterior poliomyelitis and alcoholic neuritis, 315.
Jamieson, W. Allan, M.D., occasional periscope of dermatology, 81, 178, 279, 470, 554.
Jaundice, case of fatal infantile, from congenital narrowing of the common bile-duct, by J. A. C. Kynoch, M.B., 35.
Jennings, A. Ellis, M.D., color vision and color blindness, *rev.*, 266.
Jezek, Dr F., anregung zur reform der physiologie des menschens, *rev.*, 540.
Johns Hopkins Hospital reports: report in gynecology, iii., *rev.*, 547.
Johnson, Sir George, M.D., the pathology of the contracted granular kidney and the associated cardio-arterial changes, *rev.*, 151.
Journal of anatomy and physiology, vol. xxx., part 3, *rev.*, 56.
Journal of experimental medicine, vol. i., No. 1, edited by Wm. H. Welch, M.D., *rev.*, 158; vol. i., No. 3, *rev.*, 464.
Journal of eye, ear, and throat diseases, *rev.*, 539.

K

Kemp & Co.'s prescribers' pharmacopœia, third edition, *rev.*, 544.
Keratitis, interstitial, 480.
King's College Hospital reports, vol. ii., *rev.*, 547.
Knopf, Dr A. S., les sanatoria: traitement et prophylaxia de la phthisie pulmonaire, *rev.*, 445.
Kynoch, J. A. C., M.B., case of fatal infantile jaundice from congenital narrowing of the common bile-duct, 35.

L

Labour, cerebral embolism during, 477.
Lackie, J. Lamond, M.D., puerperal pulmonary thrombosis, with an illustrative case, 21.
Lactophenin, icterus due to, 80.
Lancet and the Hyderabad commissions on chloroform, *rev.*, 148.
Larynx and trachea, autoscopy of the, or direct examination without the aid of the laryngeal mirror, introduced by Dr Alfred Kirstein of Berlin, by Logan Turner, M.D., 18.
Lejars, Dr Felix, œuvres de Léon le fort, *rev.*, 536.
Léon-Petit, Dr E. P., le phthisique et son traitement hygiénique, *rev.*, 445.
Limbeck, Dr Rud. R. v., and Freund, Dr Ernst, grundriss einer klinischen pathologie des blutes, für arzte und studirende, second edition, *rev.*, 152.
Lockwood, Prof. Charles B., F.R.C.S., traumatic infection, *rev.*, 345.
Ludhiana dispensary, a morning in a, by Grace Haxton Giffen, L.R.C.S., 439.
Lumbar puncture of the subarachnoid space, 479.
Lupus, serum treatment of, 466.

M

M'Bride, P., M.D., pulsating vessels in the pharynx, 510.
Macdougall, J. A., M.D., the surgical treatment of diseases of the appendix vermiformis, 489.
M'Farland, Joseph, M.D., a text-book upon the pathogenic bacteria, *rev.*, 54.
Mackay, F. Reid, M.D., short notes on the value of the bacteriological examination in diphtheria, 527.
Mackness, G. Owen C., M.D., some modifications of midwifery forceps, 237.
Maclagan, T. J., M.D., rheumatism: its nature, pathology, and treatment, second edition, *rev.*, 452.
M'Lean, Dr Kenneth, obituary notice of, 487.
MacMunn, C. A., M.D., the physiology of some animal and vegetable colouring matters, *rev.*, 53.
M'Naughton, J. G., M.B., notes of seventeen consecutive cases of diphtheria treated with antitoxin, 26.
Madura foot, or mycetoma, occurring in America and Canada, 181.
Maitland, Edward, Anna Kingsford: her life, letters, diary, and work, by her collaborator, *rev.*, 57.
Malaria, methylene blue in, 176.
Mall, Prof. F. P., anatomy at the Johns Hopkins University, *rev.*, 261.

Marmorek's serum, two cases of puerperal fever treated with: recovery, 476.

Marshall, A. Milnes, M.A., the frog: an introduction to anatomy, histology, and embryology by, edited by G. H. Fowler, Ph.D., sixth edition, *rev.*, 157.

Martin, Prof. H. N., physiological papers, *rev.*, 52.

Massage of the cornea, 86.

Mastitis, an epidemic of, 556.

Medical annual and practitioners' index, 1896, *rev.*, 57.

Medical education and examinations in Edinburgh, information regarding, 363.

Medical periscope, occasional, by A. Lockhart Gillespie, M.D., 88, 185, 482.

Medical school of the future, by Prof John Struthers, M.D., 289.

Membranous croup and the microbe of diphtheria, by Gordon Sharp, M.D., 518.

Mental affections in children and allied neuroses, observations in, by William W. Ireland, M.D., 196. 326.

Metabolism in thyroid treatment, 467.

Methylene blue in malaria, 176.

Midwifery forceps, some modifications of, by G. Owen C. Mackness, M.D., 237.

Miller, A. G., M.D., on contraction of the arteries of a limb the probable cause of muscle atrophy in tubercular joint disease, 220.

Modern obstetric teaching, 184.

Möller, F. P., Ph.D., cod-liver oil and chemistry, *rev.*, 544.

Monro, Thomas Kirkpatrick, M.D., a history of the chronic degenerative diseases of the central nervous system, *rev.*, 157.

Morison, J. Rutherford, F.R.C.S., case of congenital tumour on the face of a child (with reports by Mr J. H. Targett and Dr J. W. Ballantyne), 130.

Morris, Henry, F.R.C.S., injuries and disorders of the genital and urinary organs, *rev.*, 259.

Morris, Robert T., M.D., lectures on appendicitis and notes on other subjects, *rev.*, 449.

Murray, R. Milne, F.R.C.P., on forceps with adjustable axis-traction, and on forceps for occipito-posterior positions of the vertex, 228.

Murray, Wm., M.D., rough notes on remedies, *rev.*, 266.

Mycetoma, or madura foot, occurring in America and Canada, 181.

Mydriatic, a new, 469.

N

Nagel, Dr med. Wilhelm, Harn und Geschlechtsorgane, zweiter teil, abteilung 1, die Weiblichen Geschlechtsorgane, *rev.*, 153.

Nall, Samuel, M.B., aids to obstetrics, fifth edition, *rev.*, 456.

Navy Medical Department, regulations for entry of candidates for commissions in the, 384.

Newman, Ehlers, Impey, prize essays on leprosy, *rev.*, 459.

News, medical, 90, 187, 282, 486, 562.

Nitro-glycerine in angina pectoris, 552.

Normal saline solution, intravenous injection of, 177.

O

Obituary: Dr Graham Weir, 191; Dr Kenneth M'Lean, 487.

Obstetric teaching, modern, 184.

Obstetrics and gynæcology, periscope of, by J. W. Ballantyne, M.D., 83, 183, 475, 556.

Official year-book of the scientific and learned societies of Great Britain and Ireland, thirteenth annual issue, *rev.*, 268.

Oliver, James, M.D., cholesteatomas originating in the female pelvis, 33.

Ophthalmic practice, ichthyol in, 470.

Ophthalmology, quarterly periscope of, by W. G. Sym, F.R.C.S., 85, and G. A. Berry, M.B., 480.

Opium poisoning, permanganate of potassium in, 177.

Opium poisoning, short notes of two cases of, by James Ritchie, M.D., 13.

Orford, Henry, modern optical instruments, *rev* , 269.

Oxalate of cerium in the gastric crises of tabes dorsalis, 552.

Oxygen in diabetes, the use of, 553.

P

Paget, Stephen, F.R.C.S., surgery of the chest, *rev.*, 532.

Papain in gastric disease, 468.

Papular erythema following vaccination, 81.

Pathology, classification in, by Charles W. Cathcart, F.R.C.S., 37, 141.

Pelvis, contracted, in Germany and elsewhere, 557.

Pemphigus, acute, 471.

Perineum in labour, technique of the dilatation of the, by Dr G. Coromilas, 134.

Permanganate of potassium in opium poisoning, 177.

Pernicious anæmia, sublimate injections in, 277.

Peypers, Dr H. F. A., Janus, *rev* , 548.

Pharmacopœia of the Evelina Hospital for Sick Children, Southwark, second edition, *rev.*, 543.

Pharynx, pulsating vessels in the, by P. M'Bride, M.D., 510.

Phloridzin, action of drugs on the glycosuria produced by, 175.

Phthisis, serum-therapy of, 467.

Physiological size of the pupil, 481.

Pneumonia, treatment of, by large doses of digitalis, 554.

Poisoning, vanilla, 87.

Polaillon, Dr, affections chirurgicales des membres, *rev.*, 534.

Practitioner (The), *rev.*, 462.

Pregnancy, fever of, 477.

Pregnant and puerperal women, albuminuria in, 558.

Pritchard, Urban, M.D., handbook of diseases of the ear, for the use of students and practitioners, third edition, *rev.*, 451.

Primary sarcoma of the liver, enormous, in which a large blood-cyst, simulating a hepatic abscess, was developed, by Byrom

Bramwell, M.D., and R. F. C. Leith, M.D., 331.

Primary uterine prolapse, ventrofixation for, followed by pregnancy, 475.

Pringle, J. J., F.R.C.P., a pictorial atlas of skin diseases and syphilitic affections, in photo-lithochromes, from models in the museum of the St Louis Hospital, Paris, edited and arranged by, *rev.*, 458.

Prostate, castration for enlarged, 387, 390.

Pruritus vulvæ, 281.

Pseudo-lupus vulgaris, the presence of an odium in the tissues of a case of, 472.

Puerperal fever, two cases of, treated with Marmorek's serum; recovery, 476.

Pulmonary consumption, use of guaiacol subcutaneously in the treatment of, 278.

Pupil, physiological size of the, 481.

Q

Quadruplets, 183.

R

Ransome, Arthur, M.D., the treatment of phthisis, *rev.*, 530.

Rectum, absorption of fluid from the, 468.

Reviews: Abbott, A. C., M.D., the principles of bacteriology, third edition, 55; Allbutt, Thomas Clifford, M.D., a system of medicine, by many writers, vol. i., edited by, 255; Allen, Charles Warrenne, M.D., transactions of the American Dermatological Association at its nineteenth annual meeting, held at the Windsor Hotel, Montreal, official report by, 460; Ball, James B., M.D., a handbook of diseases of the nose and pharynx, 260; Barbour, A. H. F., M.D., supplement to the atlas of the anatomy of labour, 456; Barclay, John, B.Sc., Southall's organic materia medica, 267; Bell, Robert, M.D., sterility, 154; Bernard, H. and M., the structure of man: an index to his past history, by Prof. R. Widersheim, translated by—the translation edited and annotated, and a preface written by Prof. G. B. Howes, F.L.S., 52; Binz, Dr C., lectures on pharmacology, for practitioners and students, translated from the second German edition by Arthur C. Latham, M.A., vol. i., 267; Bocquillon-Limousin, H., formulaire des médicaments nouveaux pour 1896, avec une introduction par Henri Huchard, 267; Boisliniere, L. Ch., M.D., obstetric accidents, emergencies, and operations, 457; Braidwood, P. Murray, M.D., the mother's help and guide to the domestic management of her children, second edition, 457; Braithwaite's retrospect of medicine, vol. cxiii., 544; Brown, A. S. & G. G., the guide to South Africa, 1896 edition, 550; Bruce, Surgeon-major David, A.M.S., preliminary report on the tsetse fly disease, or nagana, in Zululand, 347; Burdett's hospitals and charities, 1896, 268; Cape of Good Hope leprosy commission, 1895, final report of commissioners, with minutes of proceedings and appendix, vol. iv., 263; Chiais, Dr F., les variations de la mortalité à Paris, leur cause météorologique, 346; Chipault, A., chirurgie opératoire du système nerveux, vol. i., chirurgie cranio-cérébral, 448; Clarke, J. J., F.R.C.S., post-mortem examinations in medico-legal and ordinary cases, 545; Clarkson, Arthur, a text-book of histology, 264; Collins, E. J., F.R.C.S., researches into the anatomy and pathology of the eye, 152; Corfield, W. H., M.D., disease and defective house sanitation, 545; Cunningham, Prof. D. J., manual of practical anatomy, vol. i., second edition, 157; Dalby, Sir William B., F.R.C.S., short contributions on aural surgery, third edition, 451; Dalton, Norman, M.D., aids to medicine, 257; Daniell, Alfred, F.R.S., physics for students of medicine, 541; Dawson, W. R., M.D., the elements of pathological histology, by Prof. Anton Weichselbaum, translated by, 55; Dey, Kanny Lall, F.C.S., the indigenous drugs of India, second edition, 544; Dickinson, W. Howship, M.D., occasional papers on medical subjects, 1855-1896, 256; Domville, Edward J., L.R.C.P., a manual for hospital nurses and others engaged in attending on the sick, eighth edition, 464; Doyne, Robert W., F.R.C.S., notes on the more common diseases of the eye, 343; Dreyfuss, Dr R., die krankheiten des gehirns und seiner adnexa im gefolge von naseneiterungen, 342; Eccles, W. M'Adam, F.R.C.S., elementary anatomy and surgery for nurses: a series of lectures delivered to the nursing staff of the West London Hospital, 57; Edinburgh Hospital reports, vol. iv., 461; Finlayson, J., M.D., Galen, 548; Fothergill, W. E., M.B., manual of midwifery for the use of students and practitioners, 455; Fox, R. Fortescue, M.D., Strathpeffer spa: its waters and climate, third edition, 350; Freyer, P. J., M.D., the modern treatment of stone in the bladder by litholapaxy, second edition, 449; Gant, S. G., M.D., diagnosis and treatment of diseases of the rectum, anus, and contiguous textures, 534; Gairdner, Dr J., the sixteenth annual report of the medical officer of health of the burgh of Crieff, 546; Gemmell, G. H., F.C.S., chemical notes and equations, inorganic and organic, 543; Goodall, E. W., M.D., and Washbourn, J. H., M.D., a manual of infectious diseases, 545; Hale, A. B., M.D., diseases of the eye, by E. Fick, translated by, 536; Halliburton, W. D., M.D., Kirkes' handbook of physiology, fourteenth edition, 540; Harris, Vincent Dormer, M.D., the treatment of pulmonary consumption, 530; Hedley, W. S., M.D., hydro-electric methods in medicine, second edition, 156; Henry, T. J., F.R.C.S., Claude Garton, 549; Hertwig, Prof. Dr Oscar, the biological problem of to-day: preformation or epigenesis? translated by P. Chalmers Mitchell, M.A., 445;

Hessler, Dr Hugo, die otogene pyämie, 453; Hewer, Mrs Langton, our baby: for mothers and nurses, 268; Hill, Leonard, M.B., the physiology and pathology of the cerebral circulation, 341; Huber, G. Carl, M.D., directions for work in the histological laboratory, University of Michigan, 266; Impey, S. P., M.D., a handbook of leprosy, 51; Ingals, E. Fletcher, M.D., diseases of the chest, throat, and nasal cavities, third edition, 531; Jack, F. B., the art of cooking for invalids in the home and in the hospital, 550; Jackson, E., M.D., skiascopy, second edition, 538; Jennings, A. Ellis, M.D., color vision and color blindness, 266; Jezek, Dr F., anregung zur reform der physiologie des menschens, 540; Johns Hopkins Hospital reports: report in gynecology, iii., 547; Johnson, Sir George, M.D., the pathology of the contracted granular kidney and the associated cardio-arterial changes, 151; Journal of anatomy and physiology, vol. xxx., part 3, 56; Journal of experimental medicine., vol. i., No. 1, edited by William H. Welch, M.D., 158, vol. i., No. 3, 464; Journal of eye, ear, and throat diseases, 539; Kemp & Co.'s prescribers' pharmacopœia, third edition, 544; King's College Hospital reports, vol. ii., 547; Knopf, Dr A. S., les sanatoria: traitement et prophylaxie de la phthisie pulmonaire, 445; *Lancet* and the Hyderahad commissions on chloroform, 148; Lejars, Dr Felix, œuvres de Léon le fort, 536; Léon-Petit, Dr E. P., le phthisique et son traitement hygiénique, 445; Limbeck, Dr Rud. R. v., and Freund, Dr Ernst, grundriss einer klinischen pathologie des blutes, für arzte und studirende, second edition, 152; Lockwood, Prof. Charles B., F.R.C.S., traumatic infection, 345; M'Farland, Joseph, M.D., a text-book upon the pathogenic bacteria, 54; MacLagan, T. J., M.D., rheumatism: its nature, pathology, and treatment, second edition, 452; MacMunn, C. A., M.D., the physiology of some animal and vegetable colouring matters, 53; Maitland, Edward, Anna Kingsford: her life, letters, diary, and work, by her collaborator, 57; Mall, Prof. F. P., anatomy at the Johns Hopkins University, 261; Marshall, A. Milnes, M.A., the frog: an introduction to anatomy, histology, and embryology by, edited by G. H. Fowler, Ph.D., sixth edition, 157; Martin, Prof. H. N., physiological papers, 52; medical annual and practitioners' index, 1896, 57; Moller, F. P., Ph.D., cod-liver oil and chemistry, 544; Monro, Thomas Kirkpatrick, M.D., a history of the chronic degenerative diseases of the central nervous system, 157; Morris, Henry, F.R.C.S., injuries and diseases of the genital and urinary organs, 259; Morris, Robert T., M.D., lectures on appendicitis and notes on other subjects, 449; Murray, William, M.D., rough notes on remedies, 266; Nagel, Dr med. Wilhelm, Harn und Geschlechtsorgane, zweiter teil, abteilung 1, die Weiblichen Geschlechtsorgane, 153; Nall, Samuel, M.B., aids to obstetrics, fifth edition, 456; Newman, Ehlers, Impey, prize essays on leprosy, 459; official year-book of the scientific and learned societies of Great Britain and Ireland, thirteenth annual issue, 268; Orford, Henry, modern optical instruments, 269; Paget, Stephen, F.R.C.S., surgery of the chest, 532; Peypers, Dr H. F. A., Janus, 548; Pharmacopœia of the Evelina Hospital for Sick Children, Southwark, second edition, 543; Polaillon, Dr, affections chirurgicales des membres, 534; Practitioner (The), 462; Pritchard, Urban, M.D., handbook of diseases of the ear, for the use of students and practitioners, third edition, 451; Pringle, J. J., F.R.C.P., a pictorial atlas of skin diseases and syphilitic affections, in photo-lithochromes, from models in the museum of the St Louis Hospital, Paris, edited and arranged by, 458; Ransome, Arthur, M.D., the treatment of phthisis, 530; Robertson, W. G. Aitchison, M.D., clinical diagnosis: a practical handbook of chemical and microscopical methods, 155; Roche, A., M.R.C.P., the imperial health manual, 546; Roosa, D. B. St J., M.D., treatise on diseases of the eye, 537; Roux, Dr F., formulaire aide-mémoire de la Faculté de médecine et des médecins des hôpitaux de Paris, fourth edition, 544; St Thomas's Hospital reports, new series, vol. xxiii., 350; Schafer, Prof. E. A., and Symington, Prof. J., Quain's elements of anatomy, tenth edition, edited by Profs. Schäfer and J. Symington, vol. iii., part 4, splanchnology, by, 56; Scheube, Dr B., die krankheiten der wärmen länder: ein handbuch für arzte, 340; Simon, Charles E., M.D., a manual of clinical diagnosis, 541; Smith, A. R., M.D., the laboratory text-book of public health, 444; Smith, Prof. J. Greig, F.R.S.E., abdominal surgery, fifth edition, 344; Smith, W. Ramsay, M.B., angio-neurosis, being studies in diseases of the vaso-motor system, 454; Souchon, Edmund, M.D., operative treatment of the aneurisms of the third portion of the subclavian artery, 450; Stedman, Thomas L., M.D., twentieth century practice: an international encyclopædia of modern medical science, vol. v., 457, vol. vi., 539; Sternberg, G. M., M.D., a text-book of bacteriology, 540; Stowers, James Herbert, M.D., and Bidwell, Leonard Arthur, F.R.C.S., transactions of the Dermatological Society of Great Britain and Ireland, vol. ii., 459; Sutton, J. Bland, F.R.C.S., surgical diseases of the ovaries and Fallopian tubes, including tubal pregnancy, 154; Swain, Paul, F.R.C.S., surgical emergencies, fifth edition, 533; Thayer, Dr W. S., and Hewetson, Dr J. W., the malarial fevers of Baltimore: the Johns Hopkins reports, vol. v., 257; Thompson, C. J. S., the chemist's compendium: for pharmacists, chemists, and students, compiled by, 267; transactions of the American Gynecological Society, vol. xx., 155; transactions of the American Pediatric Society, vol. vii., 543; transactions of the Clinical Society of London, vol. xxix., 461; transactions of the Obstetrical Society of London, vol. xxxvii., 542; transactions of the sixteenth annual meeting of the American Laryngological Association, 532; Travers, Graham, fellow travellers, 159; Treves, Frederick, F.R.C.S., a system of surgery, vol. ii., 446; Tubby, H. H., deformities: a treatise on orthopædic surgery, 534; Tyson, James, M.D., pathological examination of the urine, 260; Walker, Norman, M.D., the histopathology of the diseases of the skin, by Dr P. G. Unna, translated, with the assistance of the author, by, 46; Walsham, W. J., and Hughes, W. Kent, deformities of the foot, 534; Wassermann, Melville, epithelioma primitif de l'uréthre, 535; Weber, Hermann, M.D., and Weber, F. Parkes, M.D., the spas and mineral waters of Europe, with notes on balneotherapeutic management in various diseases and morbid conditions, 349; West, Charles, M.D., the profession of medicine: its study and practice, its duties, and its rewards, 462; Williamson, R. T., M.D., on the relation of diseases of the spinal cord to the distribution and lesions of the spinal bloodvessels, 448; Woodburn, W. D., L.D.S., on extraction: with notes on the anatomy and physiology of the teeth, for medical students, 260; Wright's improved visiting lists for 1897, 465; Yeo, J. Burney, M.D., food in health and disease, 345.

Ritchie, James, M.D., short notes of two cases of opium poisoning, 13; general secondary carcinoma of the bones: osteomalacia carcinomatosa; pathological report and microscopical investigation, by James Purves Stewart, M.B., 208.

Robertson, W. G. Aitchison, M.D., clinical diagnosis: a practical handbook of chemical and microscopical methods, *rev.*, 155; the constitution and use of infants' foods, 417.

Roche, A., M.R.C.P., the imperial health manual, *rev.*, 546.

Roosa, D. B. St J., M.D., treatise on diseases of the eye, *rev.*, 537.

Roux, Dr F., formulaire aide-mémoire de la Faculté de médecine et des médecins des hôpitaux de Paris, fourth edition, *rev.*, 544.

Röntgen rays, cancer of the stomach treated by the, 466.

Rupture of the uterus during labour, surgical treatment of, 83.

Rupture of urethra treated by external urethrotomy and suture, five cases of, 559.

S

St Thomas's Hospital reports, new series, vol. xxiii., *rev.*, 350.

Sarcoma of the uveal tract, 86.

Schafer, Prof. E. A., and Symington, Prof. J., Quain's elements of anatomy, tenth edition, edited by Profs. Schäfer and J. Symington, vol. iii., part 4, splanchnology, by, *rev.*, 56.

Scheube, Dr B., die krankheiten der wärmen länder; ein handbuch für arzte, *rev.*, 340.

Seborrhœic vaginitis, 391.

Secondary carcinoma, general, of the bones: osteomalacia carcinomatosa, by James Ritchie, M.D.; pathological report and microscopical investigation, by James Purves Stewart, M.B., 208.

Sepsis, intestinal, 88.

Sero-therapeutics, 89.

Serum, anti-diphtheria, the efficacy of, given by the mouth, 466.

Serum-therapy of phthisis, 467.

Serum treatment of cancer, 186.

Serum treatment of lupus, 465.

Serum treatment in urinary infection, 559.

Sex of the fœtus, the influence of unilateral castration on the origin of the, 476.

Sharp, Gordon, M.B., Is membranous croup always due to the microbe of diphtheria? 518.

Shennan, Theodore, M.D., experimental research into the action of *viburnum prunifolium* (black haw), 404.

Simon, Chas. E., M.D., a manual of clinical diagnosis, *rev.*, 541.

Skin, sleep in its relations to disease of the, 178.

Skin, tubercular affections of the, in Australia, 474.

Sleep in its relation to diseases of the skin, 178.

Smith, A. R., M.D., the laboratory textbook of public health, *rev.*, 444.

Smith, Prof. J. Greig, F.R.S.E., abdominal surgery, fifth edition, *rev.*, 344.

Smith, W. Ramsay, M.B., atypical cases of appendicitis, with a discussion of symptomatic parotiditis, 114; angio-neurosis: being studies in diseases of the vasomotor system, *rev.*, 454.

Society, Medico-Chirurgical, of Edinburgh. —*Session* lxxv.—*Meeting* viii.—Election of members; exhibition of patients by Mr Alexis Thomson; Dr J. Carmichael, Mr Wallace, and Dr Norman Walker; lantern demonstration by Mr Caird, illustrating the pathology of the appendix vermiformis; exhibition of specimens by Dr Norman Walker; discussion on Dr George W. Balfour's paper entitled a few more words on strophanthus, 62.

Meeting ix.—Exhibition of patient by Mr Joseph Bell; demonstrations by Drs Norman Walker and A. B. Giles; discussion on Dr George T. Beatson's paper on the treatment of inoperable cases of cancer, 160.

Meeting x.—Exhibition of patient by Mr C. W. Cathcart; demonstration of instruments by Drs Logan Turner and

Argyll Robertson; discussion on Dr W. G. Aitchison Robertson's paper, rôle of the carbohydrates in dietetics; Dr Byrom Bramwell's paper, a remarkable case of primary sarcoma of the liver simulating hepatic abscess; and Dr James Ritchie's paper on notes on two cases of opium poisoning, 269.

Meeting xi.—Exhibition of patients by Drs Allan Jamieson, G. A. Gibson, Harry Rainy, and Mr Alexis Thomson; exhibition of instruments by Mr C. W. Cathcart; discussion on Mr A. G. Miller's paper on the cause of muscular atrophy in tubercular joint disease; Dr Byrom Bramwell and Mr H. J. Stiles' paper on a case of deep-seated tropical abscess of the liver treated by transthoracic hepatotomy, recovery; and Dr James Ritchie's paper on general secondary cancer of the bones, 351.

Session lxxvi.—*Meeting* i.—Exhibition of patients by Drs Byrom Bramwell and James, Mr Cathcart, and Mr Caird; lantern demonstrations by Drs Byrom Bramwell and Bruce; discussion on Dr James's paper on the treatment of crime; Dr Graham Brown communicated paper by Surg.-Capt. Bedford, I.M.S., on poisoning in the Punjab, 550.

Society, Obstetrical, of Edinburgh.—*Session* lvii.—*Meeting* vii.—Election of members; exhibition of specimens by Dr J. W. Ballantyne; discussion on Dr G. Owen C. Mackness' paper on some modifications of midwifery forceps; Dr J. W. Ballantyne communicated paper by Surg.-Capt. Chas. H. Bedford, on criminal abortion in the Punjab; Dr J. W. Ballantyne's paper on teratogenesis, 70.

Meeting viii.—Exhibition of specimens by Dr J. W. Ballantyne; discussion on Dr James Carmichael's paper on indigestion of breast babies, and Dr George Elder's paper on peripheral neuritis in pregnancy; Dr J. W. Ballantyne communicated papers, abortion of four fœtuses, and cyst on the back of an infant simulating the head of another infant, by Dr Günsburg, of Charkow, Russia; Dr Rutherford Morison's case of congenital tumour on the face of a child, and Dr J. W. Ballantyne's paper on teratogenesis, 169.

Meeting ix.—Exhibition of specimen by Dr Marshall; discussion on professional secrecy *versus* privilege in obstetrics and gynæcology, 175.

Society, Royal Medical, 73.

SOUCHON, EDMUND, M.D., operative treatment of the aneurisms of the third portion of the subclavian artery, *rev.*, 450.

Splenectomy, 388.

STEDMAN, THOMAS L., M.D., twentieth century practice: an international encyclopædia of modern medical science, vol. v., *rev.*, 457; vol. vi., 539.

STERNBERG, G. M., M.D., a text-book of bacteriology, *rev.*, 540.

Stomach, cancer of the, treated by the Röntgen rays, 466.

STOWERS, JAMES HERBERT, M.D., and BIDWELL, LEONARD ARTHUR, F.R.C.S., transactions of the Dermatological Society of Great Britain and Ireland, vol. ii., *rev.*, 459.

STRUTHERS, Prof. JOHN, M.D., on separate acromion process simulating fracture, 97; the medical school of the future, 289.

Strychnine poisoning, eucalyptus globulus in, 469.

Subarachnoid space, lumbar puncture of the, 479.

Subcutaneous emphysema, a case of, occurring during labour, 183.

Sublimate injections in pernicious anæmia, 277.

Sugar as a means of increasing uterine contractions, 84.

Suprarenal extract, 185.

Surgical periscope, by Kenneth M. Douglas, M.D., 385, 559.

Surgical treatment of diseases of the appendix vermiformis, by J. A. Macdougall, M.D., 489.

SUTTON, J. BLAND, F.R.C.S., surgical diseases of the ovaries and Fallopian tubes, including tubal pregnancy, *rev.*, 154.

SWAIN, PAUL, F.R.C.S., surgical emergencies, fifth edition, *rev.*, 533.

SYM, W. G., F.R.C.S., quarterly periscope of ophthalmology, 85.

Symblepharon, 87.

Symphysiotomy, three cases of, with remarks, by Archibald Donald, M.D., 513.

Syphilis and genito-urinary diseases, periscope of, by Francis Cadell, F.R.C.S., 389, 484.

Syphilis, intra-uterine infection of, 484.

T

Tabes dorsalis, oxalate of cerium in the gastric crises of, 552.

Teratogenesis: an inquiry into the causes of monstrosities, by J. W. Ballantyne, M.D., 1, 240, 307.

Teratological cases, two, by Dr Mark Günsburg; translated, with notes, by Dr J. W. Ballantyne, 137.

THAYER, Dr W. S., and HEWETSON, Dr J. W., the malarial fevers of Baltimore: the Johns Hopkins Hospital reports, vol. v., *rev.*, 257.

Therapeutics, monthly report of the progress of, by William Craig, M.D., 77, 175, 277, 466, 552.

Thioform, 79.

THOMPSON, C. J. S., the chemist's compendium, for pharmacists, chemists, and students, compiled by, *rev.*, 267.

THOMSON, JOHN, M.D., occasional periscope of the diseases of children, 478.

Thrombosis, puerperal pulmonary, with an illustrative case, by J. Lamond Lackie, M.D., 21.

Thyroid products on growth, influence of, 478.

Thyroid treatment in the insane, 79.

Thyroid treatment, metabolism in, 467.

Transactions of the American Gynecological Society, vol. xx., *rev.*, 155.

Transactions of the American Pediatric Society, vol. vii., *rev.*, 543.
Transactions of the Clinical Society of London, vol. xxix., *rev.*, 461.
Transactions of the Obstetrical Society of London, vol. xxxvii., *rev.*, 542.
Transactions of the sixteenth annual meeting of the American Laryngological Association, *rev.*, 532.
Travers, Graham, fellow travellers, *rev.*, 159.
Treves, Frederick, F.R.C.S., a system of surgery, vol. ii., *rev.*, 446.
Tubby, H. H., deformities: a treatise on orthopædic surgery, *rev.*, 534.
Tubercular affections of the skin in Australia, 474.
Tubercular cervical glands, ætiology of, especially with reference to adenoids and enlargement of the tonsils, 385.
Tubercular joint disease, contraction of the arteries of a limb the probable cause of muscle atrophy in, 220.
Turner, Logan, M.D., autoscopy of the larynx and trachea, or direct examination without the aid of the laryngeal mirror, introduced by Dr Alfred Kirstein of Berlin, 18.
Tyson, James, M.D., pathological examination of the urine, *rev.*, 260.

U

Unilateral castration, the influence of, on the origin of the sex of the fœtus, 476.
Uric acid and allied bodies, 482.
Urinary infection, serum treatment in, 559.
Urticaria, calcium chloride in the treatment of, 470.
Uterine prolapse, urinary incontinence in commencing cases of, 557.
Uveal tract, sarcoma of the, 86.

V

Vaccinia, generalized, 81.
Vanilla poisoning, 87.
Varicose ulcer, ligature of veins in a case of, by R. W. Irvine, M.B., 227.
Ventrofixation for primary uterine prolapse followed by pregnancy, 475.
Version or high forceps, 475.
Viburnum prunifolium (black haw), experimental research into the action of, by Theodore Shennan, M.D., 404.
Visceral complications of erythema exudativum multiforme, 82.

W

Walker, Norman, M.D., the histopathology of the diseases of the skin, by Dr P. G. Unna, translated, with the assistance of the author, by, *rev.*, 46.
Walsham, W. J., and Hughes, W. Kent, deformities of the foot, *rev.*, 534.
Wassermann, Melville, epithelioma primitif de l'urethre, *rev.*, 535.
Weber, Hermann, M.D., and Weber, F. Parkes, M.D., the spas and mineral waters of Europe, with notes on balneotherapeutic management in various diseases and morbid conditions, *rev.*, 349.
Weir, Dr Graham, obituary notice of, 191.
West, Charles, M.D., the profession of medicine: its study and practice, its duties and its rewards, *rev.*, 462.
Williamson, R. T., M.D., on the relation of diseases of the spinal cord to the distribution and lesions of the spinal blood-vessels, *rev.*, 448.
Women, age and volupty in, 484.
Woodburn, W. D., L.D.S., on extraction: with notes on the anatomy and physiology of the teeth, for medical students, *rev.*, 260.
Wright's improved visiting lists for 1897, *rev.*, 465.

X

X rays, bactericidal action of the, 553.

Y

Yeo, J. Burney, M.D., food in health and disease, *rev.*, 345.

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